

ATA

A practice-led artistic inquiry
into the intersection of digital
and physical environments

This thesis is submitted to Auckland University of Technology
in partial fulfillment of the degree of Doctor of Philosophy.

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Abstract

This practice-led research project offers a notion of the Mangaian cybernetic continuum as a way to discuss the intersection of digital and physical environments in my media arts practice. I take a position drawn from the Mangaian understanding that the 'material body' has an 'immaterial other' (Gill, 1876), to propose a Mangaian continuum through art-making where 'other', is considered 'same'.

Through this lens I draw connections between the circularity of Mangaian spatial, temporal and ancestral connections and cybernetic technical systems in media arts by way of analogy. I do so to bridge the apparent distance between the continuums that are present in a Mangaian cosmogeny and the post-world War II, transdisciplinary discourse of cybernetics that emerged from the USA and the UK. Each of these frames fold into the central thesis of an investigation into Mangaian cybernetic continuum. Central motifs in cybernetics are considered; from the process of recursion in feedback loops, to flow within the cybernetic continuum, and the relations between the observer-participant and environment within a media art installation.

Through a series of creative projects, the extent to which the Mangaian concept of continuum can find a productive equivalence with the socio-technical language of cybernetics is evaluated. Media art practice, utilizing digital and physical environments, is proposed as an interface to express a Mangaian cybernetic continuum. Ultimately the artworks create an environment where the observer, researcher and artwork become conduits within a continuum, where 'other is same'

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Mum epitomised all things Manganian to me. An enormous amount of stubbornness, a ferocious tenor when challenged, a vibrant poise when silent, a huge amount of love and complete loyalty. You have always put family first, even when that meant you had to let go. You are one part of the trio that inspires my resilience.

Both women left this realm, passing over within months of each other, mid-way through this project. I have constantly turned to them for support and guidance when I have struggled with this research project.

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

A handwritten signature in black ink, enclosed within an oval shape. The signature is stylized and appears to be 'Metuanooroa Tapuni'.

Metuanooroa Tapuni July 2016

Intellectual Property Declaration

I retain copyright in all images and artwork produced and presented as part of this thesis apart from the following images that are the intellectual property of others listed below in the order they appear in this exegesis:

Figure 8-11. Gill (1876) Diagram of Mangaia's universe (attribution unknown)

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Figure 16. Gordon Pask The Colloquy of mobiles (1968) (property of artist)

Figure 21-22. Kakehi and Naemura Through the looking glass (2004) (property of artist)

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Figure 24. Ani O'Neill Buddy System (2001) (property of artist)

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Figure 34. Chuck Close Self-portrait (2004-05) (property of artist)

Figure 35. Chuck Close Big Self Portrait, (1967-68) (property of artist)

Introduction

Positioning the researcher

Me.

I am an artist.

However, increasingly over the past five years in attempting to conduct this research project, I have struggled to reconcile freedom in creative practice and the rigidity I experience in the rigor of critical analysis required for a PhD. I have spent most of my time trying to explicitly articulate inherent and intuitive ways of knowing. I have attempted to dodge being hit over the head by ethnic cultural labels and their derived meanings, while referring to ideas that easily fall into categories that become fixed by their demarcation. To explain this art practice is difficult. Its wrongness is felt in a very visceral reaction. Once I verbalize an idea, it leaves and becomes hidden again. I have to wait for it to re-emerge, to *ata*... I am continually faced with my difference to the context in which I attempt to work. In so being I privilege situating myself, both physically and mentally, on the margins. This position allows me to hear myself. I believe art production inherently relies on research, however it gets a bit skewed in an academic context; a bit waylaid by the notion of the complete forming out of the means of explicit production. To my best ability I try to maintain my position that both intuitive and explicit forms of knowledge are important for knowledge creation and translation. This position may be considered one of failure, however it is my preference as I conduct this research in my practice, where I am a medium in the continuum of *ata*, a becoming.

Introduction to the research

ata, become visible, take shape, form ...

The term *ata* was used as a working title to the exegesis throughout the time of the project with the intent that this word would change towards the end of the thesis. However it did not and this is poignant.

The term *ata*, in Manganian¹ *reo Maori* (in one form of definition of the word), means to become visible, take shape, form. As a working title it encompasses the ability for knowledge to be accrued, become visible, take shape, form over the expanse of time in a research project. However, what I have discovered through this project is that this process, *ata*, is not finite as it did not begin at the commencement of this project in an academic context nor will it cease at the end of it. More importantly the concepts that I will outline in this body of research have always in some form been present in my practice before this project and will continue to take shape beyond it, whether I make these parallels explicit or not. These ideas in practice are always shifting, forming and becoming.

The exegesis then is a document that attempts to provide insight into ideas that continually change in an attempt to become visible, to take shape, and to form in practice.

¹ Mangaia (traditionally known as A'ua'u Enua) is the second largest island in the Cook Islands archipelago group. It is the southernmost of the Cooks Group and is one of the oldest islands in the Pacific Ocean.

In this way an exegesis can not be complete as the process is always forming. In another way it is complete in its incompleteness. To have an understanding or holistic sense of this project one must understand that the invisible, the unknown, inherent and intuitive ways of knowing are as valid, if not more valid, than the explicit knowledge expressed in this document. It is the porosity (porous as in a space of transfer and as absence) of knowledge that gives insight.

Research proposition

I began this thesis by forming three propositions. First I asked how the Mangaian concept of continuum might find a productive equivalent with cybernetics². Second, I questioned the extent that media art practice, utilizing digital and physical environments, might function as an interface to express a Mangaian cybernetic continuum. Third, I aimed to explore the possibility that artworks, as interfaces in a Mangaian cybernetic continuum, might allow the observer, researcher and artwork to become continuous conduits within the flow, where 'other is same'.

Finding a way to make the implicit, explicit

To begin answering how these queries may manifest in practice I have had to explicitly identify what I contend the Mangaian continuum is and how it may be cybernetic. To do this I have had to make my understanding of the Mangaian continuum - knowledge that is inherent, intuitive and implicit - explicit.

² Cybernetics is the study of communication and control of machines and biological systems. See Chapter Four, p. 80).

I have drawn on Hungarian-British philosopher and scientist Michael Polanyi's (1983) notion of tacit knowledge, as it is a theory that acknowledges intuition and the unknown. It provides a framework and process from which to make the intuitive, explicit. To do so has enabled the ability to articulate the presence of continuum in practice, leading to a discussion on how the researcher/observer/viewer can become the conduit in the continuum of flow where other is same.

In effect I have unfolded a way of learning through knowledge creation, that I believe to be more than a byproduct of the thesis. It is unexpected knowledge that has been revealed through the enquiry of merging disparate circles of knowledge. That is the coupling of the Manganian continuum, the perspective that multiple realms intercede each other, and cybernetics, a twentieth century discourse of communication and control.

The next section provides an explanation of the key idea in this thesis, the Manganian cybernetic continuum. This concept was uncovered through the practice-led research, a molding of diverse threads that became a porous whole in the final year of the project. This overview affords the reader insight into understanding the chapters that follow and the Manganian cosmogeny that must come prior to the analysis. This introduction then, outlines the unconventional use of the literature review, its subsequent effect on the progression of content in the layout of this exegesis, as well as a synopsis of the succeeding chapters.

Key concept: The Mangaian cybernetic continuum

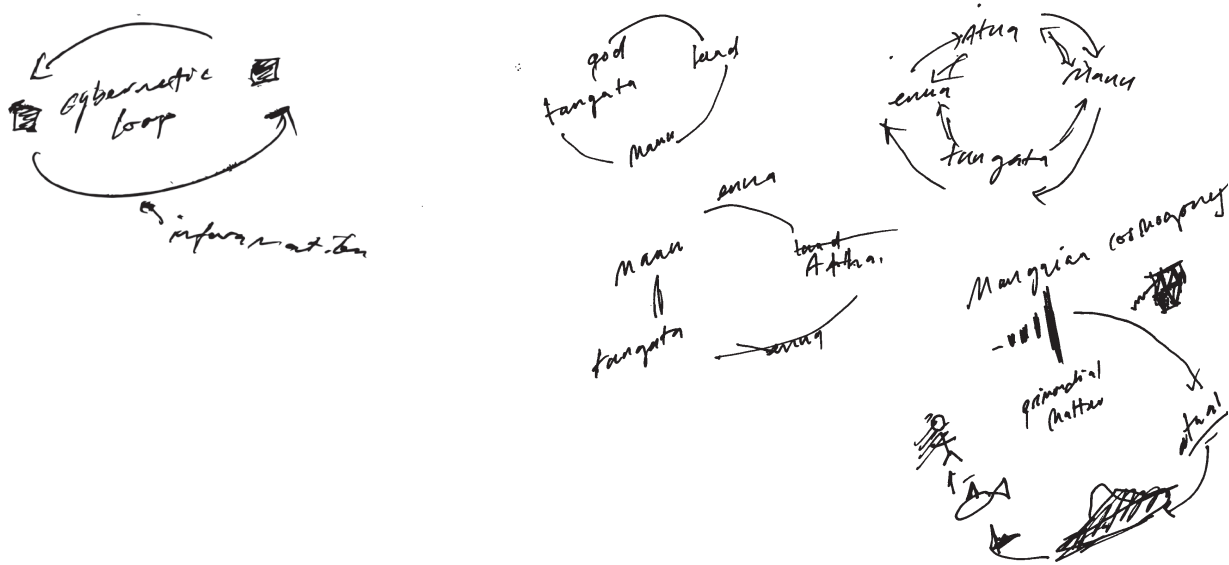


Figure 1. Conceptual drawing of Mangaian cosmological feedback loops (Tapuni, 2016).

In this thesis I propose the notion of the Mangaian cybernetic continuum. It posits that the Mangaian continuum, the connection between Mangaian cosmogony (*the creation of energy, matter, being, space/time*), the realm of the atua (*gods*), enua (*land, ecology*), manu (*animal*) and tangata (*human*) (the coupling of matter and energy, the doubling of body [human/animal/ecology] and spirit [human/animal/ecology]), is a cybernetic system (see Figure 1).

This notion draws together the Mangaian continuum, with the circularity of feedback from the established field of cybernetics of the first order and the role of the observer, as observer and part of a cybernetic system, in cybernetics of the second order. Within this thesis I then consider the extent to which this premise may be experienced at the interface of virtual and physical environments in media art practice. I will briefly outline the Mangaian continuum, describe how I perceive it to manifest in Mangaian cosmogony and its relation to cybernetics. These relationships are discussed in reference to past artworks that have informed my current practice.

The Mangaian continuum

Within this research project I suggest that the continuum is the connection from cosmogony and primordial matter to the human realm. It comes in two forms. The first is through the omnipresence of matter and energy in the material of all things in the Mangaian universe. The second is a consequence of genealogy that is the generative and iterative process of procreation. The generative and iterative process demarcates time, while matter and energy offer space and multidimensionality.

Four primordial beings

The Mangaian cosmogeny, (the creation of space, time, being), where we begin, comes into being through four primordial (sentient) beings.

The first is Te Aka-`iāroe (Te-aka-ia-roe, the root of all existence).

The second is Te-Tangaengae (breathing).

The third is Te-Manava-roa, (the long-lived) (Gill, 1876).

And the fourth is Te Vari-Mā-te-Takere, (the very beginning: the substance in which things grow) (Hiroa, 1934).

Form

These sentient beings are devoid of human form. Te-Aka-`iāroe is said to taper to a point, and sustains the 'fabric of the universe' (Gill, 1876). It is considered the primary

spirit, a quivering point from which all existence begins (Hiroa, 1934), and a germinating root at the end of the world (Mauriati et al., 2006). Te-Aka-`iāroe is a plane of paradox, creation and end, a universal constant that is in flux, a continual cyclic becoming.

Te Tangaengae is breathing, the movement through expansion and contraction, (as are the ribs during breathing) (Hiroa, 1934).

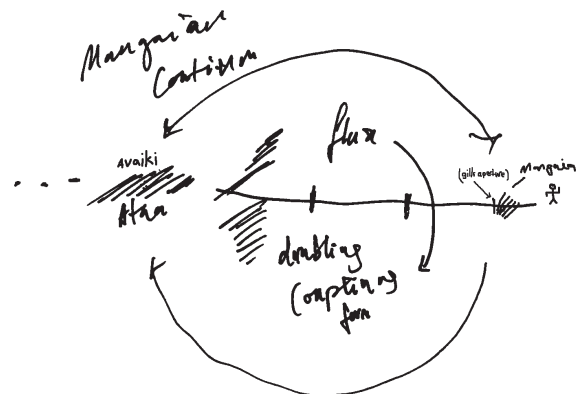


Figure 2. Conceptual drawing of Manganian continuum (Tapuni, 2016).

Te Manava-Roa, 'the long-lived', 'the long stomach' (Mauriati et al., 2006), is the continuation of breathing, the extension of breath and life-force. Te Manava-Roa transmits Te Tangaengae from the quivering paradox, resonating energy, the flux of becoming at the point of Te-Aka-`iāroe to Vari-Mā-te-Takere who materialises as 'the mud and the bottom' (Hiroa, 1934) of 'Avaiki. In this thesis I suggest that she represents the creative potential and is the apex of the four primordial beings. She is the combination of the quivering slender shaped energy, a state of flux that becomes breathing, that expands, contracts and extends through rhythm of life breath to the semi-formation of matter. I suggest that her progeny, the Manganian atua (gods), their tuārangi (sacred animals), the ecology that is afforded to them, and the Manganian human descendants formalise the process from energy to matter. This process is a transformative flux that flows through these interconnecting elements (see Figure 2).

Transformation and flux, as in the transition from energy to matter, are elements that have been drawn into my studio practice. In the digital space this is reflected through the movement of animated avatars. These qualities are in the transitions that occur in interactive works; both the translation of abstract pixelated forms to figurative resemblances and in the effect that the physical body of the viewer has on the components in the digital space.

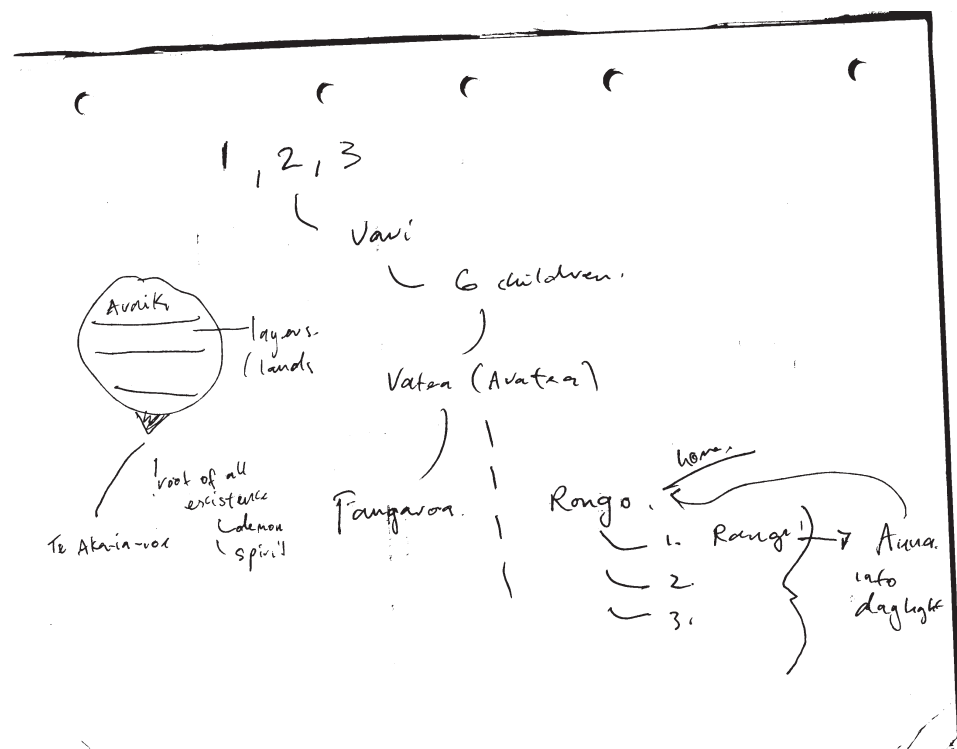


Figure 3. Notebook sketch to illustrate the genealogical table of the Māngaiān cosmology (Tapuni, 2012).

Spatial arrangement

The spatial arrangement of the four primordial beings is important to understand in this thesis because concepts of connection and multiplicity are represented within this. The primordial beings are positioned one above the other and taper to a point, as does the root of a plant (See Figure 3). They are said to exist at the bottom of 'Avaiki (Gill, 1876).

These primordial beings are recited according to their proximity to Māngāia, and each possesses their own land, in their own distinctive space existing at the extremities of 'Avaiki. I envision these four sentient beings as multidimensional, and omni-present; they are in the fabric of all things. Through the forming process of matter and energy, that is the transformation of omnipresent energy into matter in the generative and iterative process of genealogy, time is punctuated and expanded while simultaneously flattened and turned in parallel.

The notion of space within my studio practice is multidimensional, as in the spatial dynamic in Māngāian cosmogony. There is a layering of space from the physical realm, various digital worlds, and the space (gap) that connects them. There is communication between these worlds through recursion. Time appears non-linear through the moving of digital avatars, holding the attention of the viewer and the circularity of recursion. Time-based animations apply the loop, a distinct block of time captured in space, repeated, turned on itself. In a way this may be seen as 'out of sync' with real time yet folded into it.

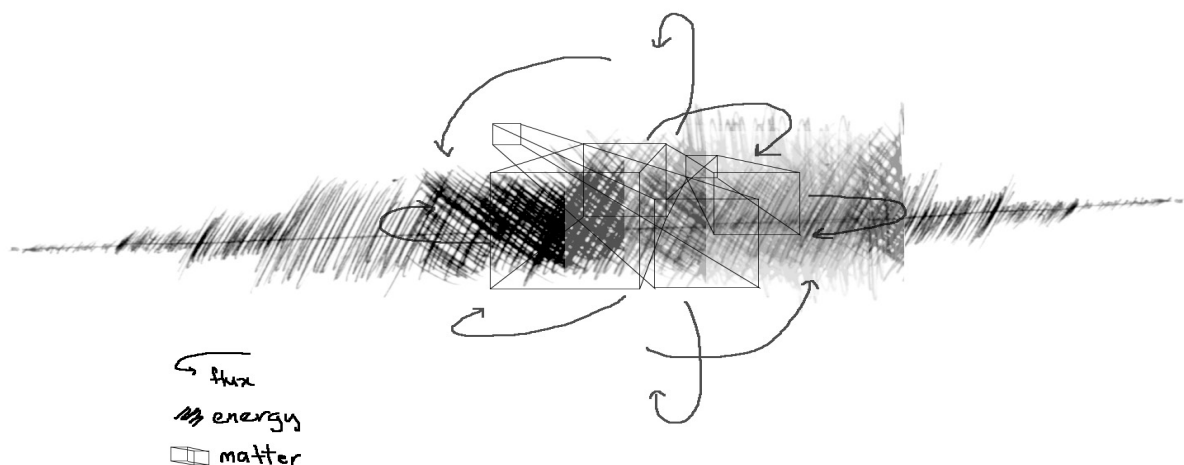


Figure 4. Multidimensional layering and flux of the Māngāian continuum (Tapuni, 2016).

Anthropomorphic to human being

From the apex of the four primordial beings manifested in the matter of Vari-Mā-te-Takere we arrive at her anthropomorphic offspring. These offspring I suggest are the coupling of matter and energy that manifest as spirit and body, night and day, lightness and dark. These elements, I propose, are in continuum where each is the extension of the other, where other is same.

Avātea is the first and is the father of gods and humans. He is said to be half human and half shark. His body is split down the middle where one half of the atua is a human male, while the other is a shark (Gill, 1876). Avātea's material body is the shark and his spiritual form is human (Hiroa, 1934). One eye is the sun, the other the moon, with one being in the human realm and the other is said to be in 'Avaiki (Gill, 1876). This suggests that the first human form resonated as a spectral phantom coupled with the physical form of an animal. In addition, dark and light are placed in opposition to each other, yet connected within one being.

From Avātea we arrive to his offspring who possess complete human form. His son Rongo is afforded the supreme figurehead in Manganian cosmology. From Rongo came his son Rangi and his siblings who split the doubling of ecology (A'ua'u and 'Akatautika) between 'Avaiki and the human realm. The Manganian people descend from Rangi, Mokoiro and 'Akatauirā.

The coupling of form flows to the tangata (*human*) through the four multidimensional sentient beings that are in the fabric of all things who flatten and turn the punctuated and expanded process of genealogy. The doubling is remnant in the human being in the doubling of the physical body and spirit. In ecology, land has a spiritual other, as in

A'ua'u and 'Akatautika and the relationship between the human inhabitants of Mangaia and the atua through tuārangi (enchanted animals). These relationships, I contend, are the Mangaian continuum forged through the generative and iterative process of genealogy.

The precursing art practice: The Phantom spectral form

By way of introduction to my art practice I will describe a work that was made prior to this thesis and anticipates many of its key themes. The doubling and coupling in the cosmogeny above appears in my practice as an unconscious synthesis of an inherent connection to Mangaia. That is, my awareness of its occurrence is often known through reflection on practice rather than reflection in practice.



Figure 5. *file corrupted* (2009), AUT install for Masters Exhibition for examination (Tapuni, 2009).

The phantom spectral form and physical body operate as the digital and physical environment within my art production. The phantom first presented itself through the work *file corrupted* (2009), a site-specific moving image work (see Figure 5 - 6). This work was projected onto a concrete wall where the animation consisted of a slow turning deformed 3D modelled head.

The black background was rendered invisible as it was projected onto the concrete wall. Considerable effort went into housing the subtle flux of natural day light into the room. This enabled the room's atmosphere to breathe in a sense, as it transformed through the changes in light levels in the room giving the physical space atmosphere. The slow turning three dimensional (3D) head gradually traversed light, dark and absence. In doing so it travelled from the visible to the invisible, from a monstrous face to an abstract moonscape, always becoming as if emerging out of the concrete wall. The work slowly reveals itself over time through the circularity of movement, a loop.

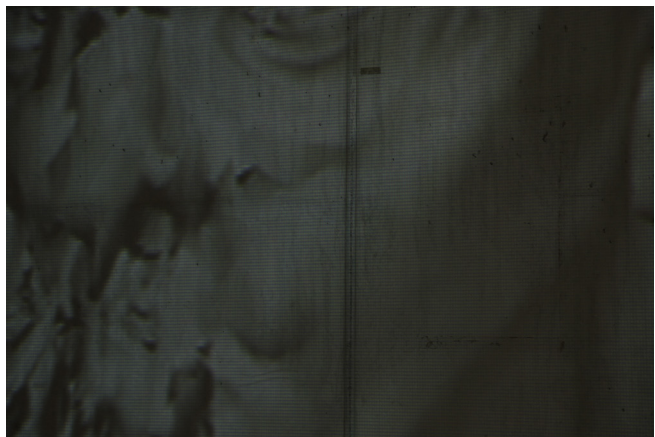


Figure 6. *file corrupted* (2009), AUT install for Masters exhibition for examination, detail (Tapuni, 2009).

The disassembled digital face was an effect of corrupt coding in the genealogical progression of the work. The intent of the digital model was made to produce a printed head (physical object) using 3D printing technology. The

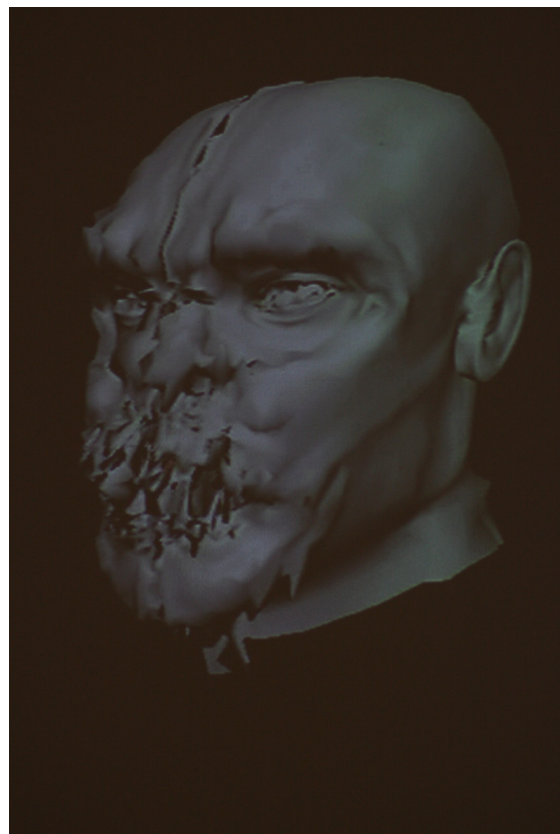


Figure 7. *file corrupted*, video animation still (Tapuni, 2009).

work was the result of a rendered digital imperfection. This could also be an instance of a gap in communication or a failed cybernetic loop. This is an idea that I return to later in the exegesis.

Relation, the circularity of feedback

To determine how esoteric relationships of doubling/coupling in the Manganian continuum function as cybernetic systems, I have focused on the negotiation between atua and tangata. The Manganian worldview perceives that the realm of atua intercedes the human realm. Action and behaviour within the Manganian realm is mediated by this relationship. Within the Manganian societal framework it is a connection that can be negotiated through notions of tapu³ and mana⁴.

³ Sacred, under restriction, sacredness of the Ariki or thing belonging to an Ariki.

⁴ Authority, prestige conferred by rights and power.

Chapter Four of this exegesis will extend the discussion of the two phases (or orders) of cybernetics in connection to the Manganian continuum through the malleable figure of the observer, who opens the system to creative potential. Through the use of analogy I connect the relationship between the atua and human to the circularity of feedback in first order cybernetics.

In a Manganian cybernetic continuum, communication occurs through the exchange of data. It has the ability to transgress and constitute boundaries. Within the Manganian societal system the Ariki is a control mechanism that negotiates the exchange of societal values of mana and tapu, through hereditary privilege between the realms of Atua and human. The goal of this exchange is the homeostasis⁵ of society.

In this system there is only a partial transfer of information, or knowledge to the social world of people and their descendants. The hereditary principle of primogeniture, the privilege of male offspring, imparts knowledge to certain parts of societal makeup, affording knowledge to move but only to limited recipients in the system.

However I argue that in the Manganian cybernetic continuum there are two points that decentralize the control away from these privileges. By definition the word knowledge in Manganian society encompasses the concept of guarded and hidden (Mauriaiti et al., 2008). Through a purely cybernetic framework this would render the cybernetic loop incomplete because information, knowledge, is absent.

In the Manganian cybernetic system this knowledge is rendered porous. That is, information contains qualities that are permeable, an intervening space, an interstice. I suggest that the responsibility of purposes and action afforded to

⁵ The ability to maintain (work towards) a steady equilibrium, between interdependent elements, in a system. This occurs in both mechanical and biological systems.

the observer, as stipulated by second order cybernetics⁶ (the second phase), through implicit and explicit means of knowledge production allows for information to flow, in, through and out of, this space. In this way information is malleable and the observer has the potential to generate knowledge. The control mechanism, or the system of transfer is open beyond hierarchy to creative potential.

In my practice I suggest that inherent and intuitive knowledge interrupts homeostasis allowing knowledge creation and transformation to occur. In so doing the circularity of exchange, with respect to knowledge acquisition and creation, in a Manganian cybernetic continuum is reciprocal. As such the scope of this thesis straddles inherent, implicit (practice) and explicit (exegesis) knowledge. In other words knowledge is created, through circularity, from inherent, implicit to explicit sources within my practice.

Chapter outline and explanation of thesis structure

This exegesis is divided into six chapters. Each chapter serves as a repository for knowledge, including the conceptual framework for my art practice. A review of literature is distributed throughout the thesis. The layout of the exegesis is relational; a circularity of ideas. By this I mean I have integrated the theoretical, historical and critical context (the review of knowledge) within the discussions on each chapter. I have done so because the flow of ideas between concepts I have generated and the context in which they lie, enables a better understanding of how my practice-led decisions have been arrived at.

⁶ Cybernetics of the second order, cybernetics of cybernetics, extends first by acknowledging the observer as an observer and the observed. By these means the observer observes the system and is also part of the system.

Chapter One: Methodology is divided into three sections. The first section offers a discussion on the central notion of interconnection and genealogy as research methods by drawing on the work of Ani Mikaere, Albert Refiti and Manulani Aluli Meyer. The second section discusses how the continuum manifests in my practice by drawing on Michael Polanyi's (1983) notion of tacit power and indwelling. It then considers how this applies to knowledge creation. The third section discusses the method of reconciling inherent knowledge with explicit knowledge, which is the manner in which I use ethno-historiographical texts as research material. Contextual knowledge operates as a point of departure for the thesis. This said, it did not proscribe the limitations of the inquiry, because as the project grew, so too did its contextual material. Theorist of practice-led research, Stephen Scrivener (2000) notes:

[...] creative-production sets out to provide a valid rationale that affirms the direction of making, at the moment that making commences [...] [Only later], breadth and depth of relevant knowledge and information is likely to widen, deepen and accrue with work.
(para. 37).

In agreement with Scrivener, this practice-led research project has enabled me to reflect in and on practice, drawing on Manganian contextual research to 'widen, deepen and accrue' the kinds of questions I ask. My own understanding of what is being discovered through practice has developed, particularly in relation to the literature. While I initially focused on two key ethnographic texts I later consulted a wider range of contemporary scholars.

Chapter Two: Tū, substantiating the Manganian continuum unfolds the presence of the Manganian continuum in written

narratives. It does so by examining ethno-historiographical texts by exposing the layers of indigenous seeing and colonial looking. To unravel these differences determines a solid platform on which Mangaian continuum and the research project may stand, that is to tū (*stand*). As noted above I will draw on two key texts by Reverend Will Wyatt Gill and Te Rangi Hiroa.

Chapter Three: Mangaian continuum recounts the Mangaian cosmogony from primordial matter to the human realm as a way to discuss the notion of connection, the Mangaian continuum. It draws on ethno-historiographical records of this narrative and is divided in two. The first section, Flux, unfolds the concept through the omni-presence of matter and energy in the material of all things in the Mangaian universe. The second doubling/coupling, the generative and iterative process explores the continuum through the generative and iterative process of genealogy.

Chapter Four: Mangaian continuum as a cybernetic system explores how the Mangaian continuum may be considered a cybernetic system. I draw together the Mangaian continuum and cybernetics of the first and second order by way of analogy. Norbert Wiener, one of the progenitors of cybernetics in the United States, had a large role in formulating the first phase (first order) of cybernetic systems. Cybernetic systems respond to change in their environment and are able to feedback into the environment (Wiener, 1961). The goal is to maintain homeostasis, equilibrium within a system. The ability to do so suggests the ability to learn. Communication is key for this circularity of feedback to occur. I suggest the ability of exchange between the human and atua realms is cybernetic and is mediated by the Ariki(s) (high chief, ruler over tribe). This is done through the negotiation of mana and tapu, which I suggest resembles the control mechanism in cybernetics.

Chapter Five Mangaian cybernetic continuum and artists' practices explores a selection of artistic practices to the Mangaian cybernetic continuum paradigm proposed in this thesis. It begins by speculating on how the Mangaian cybernetic continuum may link to artist practices through both form and content. This opens a discussion on the interface of digital and physical space and how the Mangaian cybernetic continuum may be present in it. In this chapter I draw on selected artists who work in digital and non-digital formats as a way to open and enrich the discussion of how exchange might occur through art. I focus on the notion of the feedback loop.

I examine my experience of Yasuaki Kakehi and Takeshi Naemura's *Through the looking glass* (2004) to discuss my interaction as the viewer and feedback agent (control mechanism) who activates the work. I review feedback in interdependency within Scott Snibbe's work *Deep walls* (2002). I also draw on Ani O'Neill's *Buddy System* (2001) to propose that the artist is the mediator in the exchange (feedback) and continuation of communal sharing practices. I consider how feedback is present in the process of art production, through a critique of the work of Lily Aitu Laita and Sopolemalama Filipe Tohi. I conclude with a discussion on feedback and the continuation of ancestral knowledge is explored through the use of iconography in the work of Fatu Feu'u and Mariko Mori.

In Chapter Six: commentary on practice I argue that my current body of artwork intersects both digital and physical realms, and threads together the Mangaian cybernetic continuum. I draw on both digital and non-digital forms of my work to illustrate the recurrence of themes in my practice.

As a system the physical and digital space are mapped together, often using a camera as a sensor (that enables

a continuum between the digital and physical space). This ability enables an input-output process that allows exchange and change in the physical space to influence change in the digital space. The notion of flux, the transformation from energy to matter and back, translates content. Within practice this notion may be seen in the relation of exchange, between the movement of pixels in digital space and bodies in physical space.

The chapter also contains a substantial discussion of *untitled interaction [2]* (2014), which is an interactive self-portrait from the *untitled interaction series* (2014) that went through many iterations. In this work a digital portrait image is mapped into the physical world using Processing, an open source software. Negotiated energy becomes form (matter) represented by the zeros and ones of digital code. Like *file corrupted* (2010) the frame is removed by rendering the black background invisible, allowing the portrait image to emerge from the wall. A web camera was used to pick up the observer-participant's movement in the room and their position alters the digital image, thereby distorting the portrait. This to and fro, input/output process, translates image to 'form' to abstract distorted field in a cybernetic loop.

This artwork leads to a discussion on the use of portraiture, the face, and the grid as a divisive mechanism in my painting practice. I draw a connection between these ideas that linger in the background and bring them to the fore, to *ata* (make visible the invisible), to discuss how they manifest in this thesis. This illustrates the *akapapa*, the genealogical connection, the layers, on which my practice is built upon, that enriches the current project.

The chapter will then conclude with a series of experiments *untitled, figures over the ocean in Oculus* (2014), *manchurian in mind* (2015) and *kurosawa* (2015). These test portals are 3D digital worlds made using software designed to develop and produce 3D digital gaming environments for the Gaming industry. Here I explore ways in which to interface these worlds with the physical space by drawing on the Oculus Rift, web camera tracking and projection. I critique the process of making where the focus on the distal function of tacit knowledge gave way to proximal solutions in my making process. I review the use of darkness and light as a strategy for the slow reveal within the content of these 3D worlds and installation of work. This is considered to work as a becoming, a flow to become visible, take shape, form, that is to *ata*.

Chapter One

Methodology

This chapter is divided into three sections. The first offers a brief discussion on the central notion of interconnection and genealogy as research methods (drawing on the scholarship of Ani Mikaere, Albert Refiti and Manulani Aluli Meyer). The second section links Mangaian notions of continuum to my studio-based art practice, by discussing how the continuum manifests in my work through practice. This implicit knowing is articulated with reference to Michael Polanyi's (1983) notion of tacit power and indwelling. The third discusses the method of reconciling inherent knowledge with historic narrative.

The continuum

Mangaian world view

Within the scope of this project the Mangaian continuum is multidimensional. It is a central methodological frame, a method and a key concept for my practice-led research. The Mangaian understanding of the world is centered on the belief that the realms of atua and tupuna intercede the everyday human realm. Action and behaviour within this

interconnected space is mediated by this relationship. It is a connection that can be negotiated through notions of tapu and mana. This is a cyclic relationship, one of circularity and recursion. In part, it is inherent knowing that I suggest comes by way of gene archaeology⁷. That is, the knowledge of our ancestor is encapsulated in the matter of our bodies and is a site of interconnection to atua, tupuna and environment. This I contend is the Manganian continuum. This worldview of connection has semblances in groups across Moana Nui a Kiva (Pacific Ocean).

Interconnection

For Maori author Annabel (Ani) Mikaere (Ngāti Raukawa, Ngāti Porou) interconnection is a key concept for Maori that binds all things. Mikaere (2011) contends that for Maori there are common elements in the cosmologic accounts of different iwi that set social standards for each tribe. She submits Maori are bound by the balance of reciprocity, whakapapa as a methodological tool for knowledge creation, the co-existence of the physical and spiritual realm and the connection between all things. Mikaere states, 'Perhaps the single most important message to emerge from our creation stories is that we are connected by whakapapa to one another and to all other parts of creation. [...] With this knowledge of interconnection comes an acute awareness of interdependence and the knowledge that what affects one will ultimately affect all' (2011, p. 313). Mikaere suggests that this knowledge 'is an accepted part of daily life and their presence is regularly called upon and acknowledged' (ibid.).

I find that this connection to the co-existence of realms is implicit in thinking and making in my art practice. It has an inherent omni-presence in the thinking, making and doing

⁷ This concept was first coined by spatial design theorist Dr Albert Refifi (2008).

of practice. I will discuss this further in section two of this chapter, *Continuum and studio based art practice*.

Spatial design theorist Dr Albert Refiti (2008) suggests that the centre in Polynesian thinking is a point of 'extreme transparency where the private individual becomes obliterated' (ibid., p.123). Refiti proposes that the Samoan concept of Va exists in this interdependent but radically indefinite centre. He unfolds the notion of 'sacred in-between space that allows entities/time/space to collapse together in an interconnectedness' (ibid.).

In the essay A "Psychedelic Method", Spatial exposition, perspectivism and Bricklaying, Refiti (2013) situates his PhD research in the cosmocentric worldview in Samoan cosmogony. He states 'Cosmological perspectivism opens and orients the researcher to many possible worlds in which beings (animals/humans/environment) and objects circulate' (ibid., p.28).

From this standpoint, Refiti discusses his exposition on Samoan notions of space as the unfolding of the Samoan world. He states the Samoan world 'unfold(s) (māvae) into rampant diversity; periods of such growth are followed by periods of extreme order (tōfiga)' (Refiti, 2013, p.28). Within this negotiation, responsibility and societal order is developed.

Refiti(2013) contends:

Vā, the Samoan concept of space, is an image of this 'toing and froing' from divergence/divarication to the orderly/unitary, from the smooth to the striated, from lines of flight to knots and entanglements. These movements facilitate the coming into being of tangata (humans), who are agents of both growth and

inertia'. (p.29).

The confinement and release of noa, mana and tapu, the circulation of these concepts, folding in, out, 'ensnaring and capturing [...] establishing circles of control' (Refiti, 2013, 29), in their relation to each other, orders the Samoan world (ibid.).

For Refiti, Vā is a sacred liminal space that allows entities and time/space to collapse together in an interconnectedness that is transparent. Movement that propagates within this space facilitates the coming of the human being.

There are similarities between Mikaere and Refiti's concepts and my own research process. We each draw on our respective cosmogony for interconnection and creative potential while holding our difference. This is 'tū', or what Refiti refers to as 'to rise and take place' and also 'to come to pass' it is a 'standing to presencing' (Refiti, 2008, p.123); locating oneself in relation to landscape, ancestors and family with respect to Va (ibid.).

Hawaiian philosopher of indigenous epistemology, Manulani Aluli Meyer, writes on the specificity of her 'own Hawaiian knowledge world view' (Meyer, 2014, p.154) as a way to develop fundamental relations between various indigenous epistemologies. Meyer states 'We are linked by our different-sameness and draw nourishment from this idea of interconnectedness. [...] We see each other and see ourselves' (Meyer, 2011, p.11).

The notion that all things are connected in the universe is a fundamental premise in Māngāian and Oceanic/Moana thinking, as will be discussed in relation to my practice. I stand in the specificity of my art practice and the Māngāian continuum.

'Akapapa'anga, Genealogical fold

This understanding of connection can be related to the recognition of genealogical connection, or akapapa'anga in the Manganian language or 'whakapapa' in Maori as a research method. Anthropologist Jukka Siikala (1991) poses the notion of genealogical continuity, the link between mythical time and present society through the continuation of events within narratives, as a framework to discuss Polynesian society. According to Siikala (1991), history and myth, which are now often called cosmological narratives, can be interpreted as a durable thing or artefact with specific form that relates the continuity of events within a narrative world. Continuity of the plot and traditional text may be likened to historical monuments. Social conditions and historical events may have passed but their importance and continuity is reflected in the durability of their contents. Therefore the stories of the gods and deeds of the ancestors form histories and the link between mythical time and present society may be seen as a genealogical continuity (Siikala, 1991).

This notion is similar to 'whakapapa' for Maori. Mikaere (2011) writes that as a methodological tool, 'whakapapa encourages us to regard wisdom as cumulative, each tier building upon the layer before it. It is not handed down to us in perfected form from on high; rather, each generation takes the knowledge acquired by generations past and develops it further in light of their own needs and understandings' (Mikaere, 2011, p. 317).

In Manganian language there are several words that relate to genealogy. 'Akapapa'anga, a causative verb, where 'akapapa means to arrange, dictate and tell. Papa'anga, nominalisation of a verb (verb turned to noun) means founding, basing, layering and arranging in order. Tupu'anga, again a nominal verb, means the way something starts to grow, line of

descent. Tu'i a transitive verb (a verb that can take a direct object, it is done to someone or something) means to write, draw or adorn. With the addition of tangata (person, people, mankind) Tu'i-tangata means genealogy, genealogical table and pedigree (Mauriaiti et al., 2006). These definitions involve an action to something, a doing, arranging, layering, growing, writing, drawing, adorning.

Meyer (2013) states:

Relationships as a verb infers the intentional quality of connection that is experienced and remembered. [...] into the simultaneity of the unseen and seen. [...] It is knowledge through experience, individual or collective, and a way of being via site-specific familiarity through years, generations, and life-times. In this way patterns emerge collapsing time into space and all unknowns into mystery and story. It is knowing shaped by purpose and knowledge prioritized by function. (p.98).

'Akapapa'anga, papa'anga, tupu'anga and tu'i-tangata are relational experiences, a connecting not just to something, but a connecting of self to other selves, as in 'I am in relation to my ancestor'. This acknowledging of self through the other, in the difference and sameness of ancestor, is a turn towards and embodying of self in another.

When discussing the notion of tū, a place to stand, locating oneself in relation to landscape, ancestors and family with respect to Vā, Refiti (2008) argues that to understand this knowledge one must understand one's own body.

Refiti (2008) states:

your being is woven flesh, a gene archaeological matter made of ancestor/land/community/family. Therefore your body does not necessarily belong to you as an individual. Because you are woven from the flesh of the dead, your body belong(s) to the ancestors, to your fanua, the place of birth, and to the community that shaped and cared for you. (p. 124).

I would suggest that this implies an inherent connection to ancestral knowledge that is in our genetic construction. That is, we are always in a state (or action) of *tū*, 'standing to presencing', 'to rise and take place', 'to come to pass' (Refiti, 2008) in connection with our ancestors, to self (and) other.

Tū, the way to tū

In the Manganian language, *tū* has multiple definitions, depending on the context. As a verb it means to stand, rest in position, rise, establish itself, form, endure. As a noun, *tū* means appearance, character, quality, behaviour, style, way or method (Mauriaiti et al., 2006). That is, the term *tū* is to stand, rise, the way to stand or the way to rise.

As a method in this research project, *tū* (stand, way to stand) is accompanied by/connected to 'akapapa'anga (layering, arranging). That is the intent for 'akapapa'anga is to *tū*, to lay, arrange a position or way to, in which to, stand in. To determine *tū* (stand, way to stand), one must 'akapapa'anga (lay, arrange). That is, to determine a position to stand in, one must lay or arrange a foundation to build upon or to *tu'i*

(write, draw, adorn) as in art practice. This relationship is in continuum. As a research method in the methodology of connection, the process is in flux, a continual call to action from tū to 'akapapa'anga and tu'i. This process is one of circularity and recursion, where positions are folded and unfolded. This continual shifting allows for knowledge creation, iteration, accumulation and (re)generation. In another sense this shifting (change in position, a shift in stance) allows layers of knowledge, information, data and experience to amass on which one may 'akapapa'anga to, or tū stand in the presencing of the ancestor.

In my practice 'akapapa (layer, genealogy) can be related to the wholistic layering of ideas and imagery through my body of artwork. My art practice is diverse and includes painting, moving image and installation. These categories are not rigid. For instance I attempt to install moving image as sculpture, free from the rectangular TV box or projector frame. I used this strategy to displayed *file corrupted* (2010) (see Introduction, p.11). Within this research project I applied this strategy to the way in which I installed the *untitled interaction series* (see Chapter Six, p.129).

Recursion as a strategy also appears in the reuse of imagery and concepts. In this project I have reused my portrait (*untitled interaction series*) which has manifested in oil painting and as the facial base for 3D printed plaster head *monkey man* (2008). The layering and recursive strategies deepen the meaning unfolded in practice through my artworks. I touch on recursion in the *Cycling ideas through the method of circularity* section of this chapter below. I also provide and indepth discussion on the reuse of imagery and the way this shifts knowledge creation through iteration in Chapter Six.

To tu'i can be aligned to the processes of mark making. The physical gesture that ties expression through paint onto canvas, or adorning 3D digital models with texture (see Chapter Six, p. 157). In this research project I have drawn from my skill set developed through painting on canvas and shaping things (in stone, clay, wax, plaster), to shape and apply texture and colour to 3D digital models.

In practice 'akapapa'anga can be related to the making of work. In the process of making an artwork I am connecting. I am in relation to my ancestor, that which is through genealogy and etched in my artwork, in sameness and difference. I discuss this continuum, interconnection, in greater depth below.

Tēta'i, multiplicity

To clarify, the notion of an other used here is in opposition to any notion that I might see myself through the eyes of the other. That is, I do not see myself through the eyes of a papa'ā (European) male. There are two terms that align with the word other in Manganian language; one is kē that means different, other, wrong. The second is tēta'i that means a certain one, another, other. The acknowledging of self in the other, in the difference and sameness of ancestor, is in tēta'i, a certain one, another and other. In a sense, this form of seeing a doubling is multiplicity or rather seeing in multiplicity.

This concept underpins the notion of Manganian continuum, which in itself is multidimensional; is at the same time a methodology, a method and a concept within this research project. It frames the method of connection which again is another connecting value illustrated in Oceania. Mikaere (2011) argues that there is no distinction between

the spiritual and physical realm for Māori. Drawing on Papatūānuku, Mikaere states 'she is an atua, tupuna and land simultaneously: there is no sensible way of separating out the ways in which humans experience our relationship with her' (Mikaere, 2011, p.318). It is the relationship with the surrounding world that does not delineate generations through divisions of past, present and future (ibid.).

This method or process of seeing the world as the coexistence of the realms of atua, tangata and land without linear division is crucial to understanding the research conducted in this project. That is the methods and processes used to acquire, interpret and create knowledge are done through this lens. Essential to this way of understanding and researching is the relational experience to 'akapapa'anga and tu'i. These engage tū, a place to stand. These elements are in continuum to each other, through the circularity of exchange.

The next section in this chapter on methodology unfolds my practice-led research process. The core argument discusses how the continuum manifests in my practice and how I attempt to make this implicit knowledge, explicit.

Continuum and studio based art practice

Practice - definition

I define practice as making, doing, thinking and being which is not limited to art production, nor is art production limited to a specific medium. By this I mean I am a multidisciplinary artist and practice manifests many areas of my life. In the context of the thesis, this exegesis, in part, is considered practice. I focus here on art practice through digital

production, as this is the scope of the research project in an academic context. Also, the continuum extends beyond its application to my art practice and the notion of practice is not limited to an art context. By this I mean continuum is omnipresent, whether making, doing, thinking or being. It is inherent knowledge that resonates through intuition.

By outlining the manifestation of continuum in practice, I outline the way (method) in which I understand the world, create knowledge and formulate meaning. In other words, practice (making, doing and being) is knowledge creation. Key to the process of knowledge creation is circularity.

Cycling ideas through the method of circularity

Circularity is a key concept in the proposition of the Manganian cybernetic continuum and is an inherent strategy for creative production. By this, I mean within practice I often recycle imagery, content in moving image and interactive work, and re-install work in different sites. The change and shifts in content or context provides continuity. These shifts allow new concepts and meaning to be acquired while deepening and intensifying their meaning and purpose. This approach is also applied to written text. I often re-read a text over a significant period of time (often months or years). The accumulation of knowledge through experience, in and out of practice, reframes the lens in which concepts are understood.

Open and porous indwelling

Embedded in the Manganian way is the notion of continuum. This is the connection of the ancestor, animal, environment and human realm. This connection flows from the lands of

the four primal sentient beings to the multiple dimensions of their descendants, the atua, manu, land and the Manganian people.

Continuum is an implicit concept that underscores art production within this research project. I use the term implicit to describe the presence of continuum in the creative process, as it is inherent, embedded and unspoken in practice. It does not function as a prime focal point or explicit set of tasks in art production; however it underlies the process of making.

Making involves the stringing together of diverse elements. For instance in creating a digital space in Unity 3d I will import a number of assets into the interface. These may be 3d digital models; often figures linked to movement or used to make animation, video content, light and sound. I then play. Through play I find freedom from internal critique that in my personal experience can override creative expression. I open a world, sculpt in structure, place in figures, animate, infuse the world with movement, mark and colour. In play, motion, movement and flux compels an active relaxed state. While creating an atmospheric space, I dwell in it, and then open to the space of continuum in the digital interface.

These worlds may materialise as complete works or serve as testing models. Testing models are experimental spaces that I create to test an idea or resolve an issue. They are often never opened or installed for formal critical feedback. External critique however is brought to more developed works in the practice portion of the thesis. These are installations that map the digital environment to the physical. These occur by way of formal critique sessions with the AUT's Postgraduate Art and Design Performance research group, and informal discussions with friends and family.

In practice continuum occurs through the 'ritual' of making. When in the flow of making there is an internal dwelling that is open and porous. In the flow of making this open and porous connection is exposed to our otherness. It is always present and can be activated through making. This is partly an unexplainable embodied experience and the output is creative production. The idea of an internal dwelling in the flow of making resonates with Michael Polanyi's (1983) notion of tacit power and indwelling. It is a theory that acknowledges intuition and the unknown.

Michael Polanyi's indwelling

Hungarian-British philosopher and scientist Michael Polanyi (1983) contends that bodily processes and creative power operate to create a bridge for tacit knowledge⁸ to be discovered. He proposes that through the notion of indwelling, dwelling in the thing, meaning for an individual becomes known as it is interiorized and used to interpret experience. This embodied activity is a means by which the particulars of a subsidiary awareness, tacit knowledge, come together as a meaningful whole.

Polanyi's (1983) notion of indwelling, or dwelling in the thing, can productively connect to the way the researcher becomes part of a continuum when making. In my work this is the inherent embodied process that connects one to the ancestor. In this way the Manganian continuum by nature is always in connection to another, an unfolding of self as other. This notion is explored in this research project through the relation between, or the reciprocal effect, of the viewer in the physical world and happenings in digital space.

⁸ Knowledge that cannot be adequately verbalised or made explicit.

Dwelling in the continuum through making, opens the continuum. This allows for an intuitive awareness of meaning. Through this an attempt is made to align cybernetic circularity and Manganian continuum. To do so goes towards answering the research question: to what extent can the Manganian continuum be experienced at the interface of digital and physical space in media art? As a consequence this proposition unfolds a new intertwined meaning where the seen and unseen can meet. The next section discusses how I reconcile inherent knowledge and historic narrative through Polanyi's proximal and distal terms.

Proximal and distal knowing

Connecting inherent knowledge and historic narrative

I shape a notion of continuum through the negotiation of inherent knowledge and the documentation of Manganian cosmogonies through recorded narrative. For the most part, this negotiation appears to conduct itself through intuition; however Polanyi's notion of interiorisation and the terms proximal and distal⁹ may help elucidate something I find inexplicable.

Through the body I attend to experiences in the world, the space of continuum, which underscores making. Polanyi (1983) suggests the body is the instrument through which one understands all knowledge. One relies on one's awareness of the body to attend to things outside. In other words, he suggests that it is through the body that one experiences the world. In the context of this research project it is through an internal understanding of continuum that I negotiate external notions of continuum. In other words I interiorize

⁹Polanyi (1983) discusses tacit knowledge in relation to two terms. The proximal term is the part that is closer to us, while the distal term is further away. For Polanyi tacit knowledge is the unity that the proximal and distal pair constitutes. Polanyi illustrates the relationship by referring to an experiment where a person presented with a collection of syllables received a shock after some of the collection. The person was able to anticipate the shock at the sight of the shock syllables but remained unable to identify the syllable. Thus he concludes, we become aware of the proximal term, that which is close to us, only in the presence of the distal term, that which is further away, but we remain unable to communicate the former.

the historic text-based discourse from outsiders to Mangaia that nevertheless reveals some traces of the voices of ancestors, with my inherent understanding of continuum as a way to attend to the meaning of continuum for this project.

The negotiation of inherent knowledge and recorded, cosmological narrative, within the context of this research project, may resonate with the way in which Polanyi's (1983) proximal and distal term functions to constitute tacit knowledge.

Polanyi proposes that when we make a thing function as a proximal term of tacit knowledge we incorporate it into our body or extend our body to include it so that we dwell in it. It is by dwelling in the thing that we know its meaning. This occurs as it becomes interiorised and used to interpret experience. The ability to interiorise the terms of tacit knowledge through indwelling enables the terms of tacit knowledge, proximal and distal, to be seen as a comprehensive entity. For Polanyi, true knowledge lies in the ability to use this interiorisation.

Inherent knowledge, within the context of the research project, may then work as a proximal term, the part that is closer to us, and the recorded narratives by Gill and Te Rangi Hiroa may work as the distal term, that which is further away. We become aware of the proximal term only in the presence of the distal. That is to say I become aware of an internal understanding of continuum in the presence of, and attending to, the external documented historic narrative the research draws on. Yet I still find it difficult to communicate that which is proximal, the internal or inherent understanding of continuum. It becomes possible via Polanyi's terminology and through expression in creative practice.

The relationship between my inherent understanding of

continuum and the process and production of creative practice is a more apt application of the proximal and distal to describe tacit knowledge. This is because the creative product is the distal term I attend to while indwelling in the proximal of continuum. In my experience there is an inherent relationship between the notion of continuum and making.

Therefore this research project draws on two sources to unfold the Manganian continuum. This is conducted through the negotiation of proximal and distal terms, between inherent knowledge of the researcher and historic narrative about Mangania from ethnographic sources.

As I interiorise discourse from reading these texts with my inherent understanding of continuum as a way to attend to the meaning of continuum, I digest indigenous (Māori) knowledge and colonial subtext within the genealogy of these narratives. In doing so I consume the complexity of the contested material and regurgitate through the research project its paradoxical complexities.

This in turn defines my tū, my position with regard to the implicit inherent knowledge and the explicit written historic narrative. I acknowledge that I do not tū, stand, as an expert in Manganian tribal and historical knowledge, ('Are kōrero¹⁰ or 'uirangatira¹¹). I access this knowledge through Refiti's gene archaeological relations by way of my mother. I attend to this knowledge through the lens of an artist.

In the next chapter will discuss the historical context of ethno-historiographical texts in an attempt to unfold its story, to 'akapapa'anga in the effect to unveil the relation of where I tū to historic narrative.

¹⁰ A Māori historian, especially an expert in genealogies (Mauriati et al., 2006, p.73).

¹¹ A title held by the chief of a sub-district, sub-chief (Mauriati et al., 2006, p. 542).

Tū (*stand*) ,to substantiate the Mangaian continuum

The story of our tupuna and atua in Mangaia is riddled with holes. Looking back, to 'akapapa'anga, to tu'i from here, where I tū, the recorded history and social context of these narratives are a contested space of indigenous voice and colonial subtext. This relationship is important as it is embedded in the fabric of these texts. That is the content and the narratives, and the stories flux, indistinguishable at times, between indigenous seeing and colonial looking.

This chapter of the exegesis examines the historical context of ethno-historiographical texts by exposing the layers of indigenous seeing and colonial looking. It seeks to turn and unfold a strong presence of the Mangaian continuum in these narratives. To do so substantiates the Mangaian continuum giving the research project a solid platform on which to tū (*stand*).

I have chosen to explore these texts for the richness of the ideas held in their contents. A contemporary reading of this material, within this research project, regenerates these concepts in a contemporary context. It is also offered a new application in the digital sphere, through media art practice, which adds re(new)ed meaning to ancient concepts.

Colonial undertone (the impact of colonisation on 'akapapa ('anga) and tū)

Mangaian society went through significant transformation in the late nineteenth and early twentieth centuries. This was in part a by-product of the introduction of Christianity into Mangaia and later the annexation of the Cook Islands to Britain (1888 - 1900) then New Zealand (1901 - 1965). I believe the process of colonialism, primarily the denigration and subordination of Mangaian culture, is important as it serves as an undercurrent to the main body of published research on Mangaia that was conducted through this era.

Power transformation in the acquisition of land

In pre-Christian Mangaian political society the ruling elite were concerned with the attainment of the Mangaian title¹³. They 'sought hegemony over Mangaian society' (Reilly, 2009, p.9) and its resources. Power was attained on the battlefield as opposed to hereditary entitlement. The challenger had to be a strong warrior with powerful political alliances. The value of mana associated with this role was immense and tied to land resource that would be distributed amongst the victors.

However with the influence of Christianity and allegiances to Britain and later New Zealand, the late nineteenth century saw the Mangaian community change the way in which land was acquired. Power relationships within Mangaia were transformed. This came through the allegiance to the British crown and conversion to Christianity. The integration of Christianity into Mangaian society shifted the way in which hegemony was obtained. The value of the warrior culture became subordinate to political allegiances. The ruling

¹³ Mangaia is the name of the island and is also the term for the temporal lord

elite would convert to Christianity to remain in power. Lineage and hereditary principles became more important than in the pre-Christian era. During annexation to New Zealand, Chiefs had a role in government and control of land rights. However the Resident Agent¹⁴ set social standards to adhere to. This led to a loss of autonomy during this period (Reilly, 2008).

The conversion to Christianity and British colonial values signifies a shift in the way our tupuna considered our atua and societal structures. Incorporated into this new way was a distancing from our culture values and frameworks.

This caused a shift in *tū* (*place to stand*) on a societal level across tribes over time in parallel with colonization. The new stance, *place to tū*, appeared to sever ties that connected our tupuna to our atua. Instead of calling to and 'standing in presencing' to ancestor and atua in Refiti's (2008) gene-archeological matter, our ancestors appeared to turn away from ourselves, to call to Christ and British sovereignty. In doing so the distance dismantled the continuum. We, in a sense, began to *tu'i* (*write, draw, adorn*) to *kē* (*other*), to the other, *tu'i tū kē*, standing in difference to ourselves.

The shift in stance appears in historic records drawn on in this thesis. It is evident in references made by our people as articulated in research conducted through this transformative era. Sikkala's (1991) notion of genealogical continuity, mentioned in Chapter one, the continuity of social conditions and historic events through the retelling of narrative plot, may be inadvertently reflected here.

That is, by drawing on these texts, I in part draw on this contested material. This pull occurs through the use of these written records and through my gene-archeological matter. The history of my people is buried in my genes. The

¹⁴New Zealand representative and administrator of its laws.

repercussions of this for my research project are that the platform on which I attempt to tū, (*stand in presencing*) to ancestors in continuum, appears porous, in parts invisible, with the remainder overwhelmingly absent.

In this way the foundation is unstable. This instability destabilises the function of my inherent knowledge through gene-archeology matter. It challenges the perspective of multiplicity through the confrontation of binary (heaven/hell) or singular (science/capitalism/globalism) approaches to thought and function, leaving the method of 'akapapa'anga and tū to our tupuna weakened.

The remainder of the chapter is an exercise in strengthening the tū (*place to stand*) of the Manganian continuum in reference to the text this thesis draws on. It will expose the racism in the frame of the writers of the text. The reader will recall from the introduction that the English missionary, Reverend William Wyatt Gill, and New Zealand anthropologist, trained physician and Resident Agent, of Maori and Pākehā descent, Te Rangi Hiroa (Sir Peter Henry Buck,) are key references¹⁵ for this project. Both Hiroa and Gill wrote about Mangania from their specific worldviews. They wrote as outsiders to Mangania and placed the Mangania people in a position of inferiority to themselves.

I expose threads of colonial tone, subordination and distancing from tupuna through their text. On face value this dynamic appears straightforward in the work of Gill and Hiroa, however it is not. To unveil the hidden complexity of this time I draw on Reilly who turns these threads to reposition the actions (reactions) of the Manganian people as purposeful choices in the thinking and being way of our tupuna. He does so by privileging the voice of Mamae and

¹⁵ Reilly (1993) contends that recent publications by anthropologists and geographers are based on the foundation work done by Gill and Hiroa. For example archaeologists Anton and Steadman (2003) refer to Gill's ethno-historiographical accounts when deducing behavioural, cultural and political circumstance surrounding fragments found in archaeological digs and burial patterns in Mangania.

Aiteina, the Manganian informants (indigenous voices) of Gill and Hiroa. It is this turning that I enfold to strengthen the tū for the Manganian continuum.

The missionary's view

William Wyatt Gill, was a missionary from the London Missionary Society (L.M.S) who served on Mangaia from 1852 to 1872. He combined theology with a university education and was the first to do so (Reilly, 1993). As a missionary ethnographer on Mangaia he was under the maru (protection) of the Ariki (chief) at the time (ibid.). Religious Ministers were held in high esteem in Gill's era. To be acquainted with a minister added mana to the ruling chief.

Gill's foremost-published works on Mangaia are *Myth and Songs of the South Pacific* (1876) and *Historical Sketches of Savage Life in Polynesia* (1880)¹⁶. Later Te Rangi Hiroa (1934) would criticize Gill's published work as more predominantly concerned with stories of 'murders, human sacrifices, and cannibalism than about the more constructive institutions of Manganian culture' (Hiroa, 1934, p.8). He covered Manganian history from its inception, first settlement to the introduction of Christianity.

Gill's worldview as a British missionary conditioned his perception of Pacific people. In the final paragraphs of the Preface of *From darkness to light*, Gill (1894) writes:

'Are the Polynesians worth the saving?' inquired an eminent preacher and author of the writer, when on furlough at home. I think the perusal of the following pages will be a sufficient answer to that question. Our Master came 'to seek and to save them that are lost.' Christ's pity for the downtrodden and outcast

¹⁶ This was later released as *From Darkness to light in Polynesia* (1894)

of all races is the sure evidence of His divine mission. (p.9).

It is evident here that Gill perceives the 'race of Polynesians' as oppressed, exiled, lost and in need of saving. The process of converting a person from their indigenous values to Christianity was a reflection of Gods divinity.

He goes on to discuss the successful introduction of Christianity to other areas in the Pacific. He acknowledges pioneering evangelists from Europe, Rarotongan missionaries and their "flocks", that had been kidnapped and sold into slavery in Peru, those that died as martyrs in the New Hebrides and New Guinea and victims of the deadly fever.

He finishes the preface with:

'Blessed are the dead which die in the Lord.' I am persuaded that these noble men and women who fell on the battle-field were comforted by the thought that they were winning a new empire for their Divine Master! May British Christians emulate their apostolic zeal!. (p. 10).

Here Gill suggests that the indigenous people who converted and died while conducting missionary exploits were noble. He perceived the missionary pursuit of conversion as a field for battle where the goal was to gain a new empire for Christianity. The structure of From darkness to light clearly reflects this transition. The book is segmented in two parts. Part one is titled Darkness; or incidents of savage life, which constructs the majority of the publication and precedes the domination of Christian values. Part two is titled Light, with the subtitle; how Christianity was introduced into Mangaia and reflects the enlightenment that

conversion had brought to the Manganian people. He was at the same time recording and effecting change in Manganian society.

The Anthropologist's view

Gill's work was argued against and also built upon by Maori doctor Te Rangi Hiroa (Peter Buck¹⁷) almost sixty years later. Hiroa conducted fieldwork on Mangania from December 1929 to April 1930. During this time he acted as Resident Agent and physician for Mangania. Hiroa's interest in anthropology led him to become the leading authority of Maori material culture. His work included general surveys of ethnology and social organization in major Polynesian groups. His principal publications on *Mangania culture* are *Manganian society* (1934) and *Mangania and the Mission* (1993)¹⁸. His research was supported by the Bishop Museum in Hawai'i.

Hiroa himself believed his Maori ancestry gave him insight to Cook Island Māori custom and made him more sympathetic to the indigenous voice. He used his first-hand knowledge of Reo Māori to re-interpret Mamae's¹⁹ original writing and cross-examined his reading of Mamae's work with Gill's translation. In doing so he found incorrect word definitions²⁰ that led to inaccurate conclusions by Gill.

¹⁷ Peter Henry Buck was born circa October 1877 to English Irish immigrant William Henry Buck and his wife Ngarongo-ki-tua, who raised the child through Maori Whangai custom. His biological mother, Rina, descended from Ngāti Mutunga. He grew up in Urenui, Taranaki and was brought up and educated within a Pākehā community. He learnt colloquial Maori and lore from Ngarongo-ki-tua and a great aunt, Kapuakore. The name Te Rangi Hiroa was bestowed on him in honour of a relative and was used as a pen name. Hiroa trained as a doctor at Otago Medical School and served as a medical officer for Maori while improving sanitation within Maori communities. He was a politician while a member of the native affairs committee. With the outbreak of the First World War, Hiroa joined a Maori volunteer contingent as a medical officer, through which he attended Gallipoli. He transferred to combat duty and became a military leader in the Battalion he served.

¹⁸ This book is the final chapter that is missing from Hiroa *Manganian Society* (1934). For the first time in 1993 it describes the social and economic changes in Mangania that resulted from Christianity.

¹⁹ Gill's informant.

²⁰ For example Hiroa(1934) states: The name Te-Aiti-i-te-apiapi probably means the "Narrow-land-where-little-could-be-done." The land of Vari is alluded to in dance song (pe'e kappa) composed by the ancestor Potiki. [...] Gill (6, p. 8), in quoting this song, spells Te Aiti with small initial letters and translates the first line, "The house of Vari is the narrowest of all." Treating Te Aiti as descriptive instead of as a proper noun, the name of Vari's land, led him into the error of describing Vari as living with her daughter in the land of Enea-te-ki.(pp. 10 -11).

His reo Māori allowed him to discern between what he believed to be conflicting versions of land occupation and structure in Manganian cosmology as covered by Gill. His ability to draw from Māori knowledge and a respect for the indigenous voice gave him important insights into the cultural values of the Manganian people.

However he used his role as the representative of New Zealand, Cook Islands colonial rulers, to conduct 'ethnographic work in terms of his pro-consular power over the islanders' (Reilly, 1993, p. 5). This attitude placed him outside the community. He drew on the power of the village police to assist in data collection, allowing him to take head and body measurements of the Manganian community and to use prisoners to clear archaeological sites (Reilly, 1993).

He further distanced himself from Mangaians through his bias, believing Māori to be the pinnacle 'race' of Polynesia. Reilly writes 'Manganian came in for much criticism: he (Hiroa) doubted whether their early traditional experts had a 'high scholastic attainment', and he considered Mangaians to be recent and lowbrow migrants who had concocted a more illustrious history of themselves' (Reilly, 1993, p.5).

Both writers impart their particular views in their analysis of Manganian society: Gill with his Christian zeal to transform natives from the darkness of savagery to the light of Christ and Hiroa's anthropological recording that placed him outside and above the community. Their research contains an undeniable imperial tone. Taken at face value, Manganian's are savages who improved their lot by converting to the light of God. They were also classified as ignorant charlatans who had no strong sense of ethnic identity; however Reilly's research counters this viewpoint by focusing on the indigenous voice in the body of written knowledge. By drawing out this perspective, Reilly exposes that the

action to convert to Christianity was conducted through the worldview and values of a Manganian framework. This reveals a key value engrained in Manganian thinking that embracing change and transformation is continuity.

Contemporary perspective

New Zealand historian Michael J. P. Reilly reconsiders the corpus of Manganian historical literature in a contemporary context. He is concerned with the implications of the observers (Gill and Hiroa) to impart their thoughts into the cultural information they gathered. Acknowledging his role as an outsider to Mangania, Reilly conducted his research in consultation with leaders in Manganian society.

Reilly's work is based on a thorough overview of published works and letters that reference the Manganian society during the transition in the colonial world. He had reviewed Mamae's manuscripts²¹, and analysed them in reference to Gill and Hiroa. Reilly's essays encompass different aspects of Manganian society from the role of female as ariki, war, grief and the effect of colonization on early Manganian society. The over-riding theme in the research purposefully highlights the contribution made by Manganian writers to the historic cannon of Manganian literature and also the assertions of autonomy in the Manganian mind set. The next section will unpack Reilly's work as it provides an alternate analysis to the content held in the work by Gill and Hiroa. First I review his strategy for finding new meaning in historic narrative.

²¹ These are Mamae's original written documents of the social foundations and political history of his tribe.

Conducting new conclusions: Reilly's methods

In the essay *In the Beginning Was the Word': Tuārangī, Evil Spirits and Foreign Beings in Māngaiān History* (1993), Reilly discusses the context in which Gill and Hiroa conduct their respective investigation. He unpacks the influences of both ethnographers in an attempt to discuss their disparities. He then draws on contemporary concepts to induce new conclusions about the early Māngaiān society. From here Reilly sought to resolve the implicit disparity between the textual authorities by drawing on post-structuralism and the academic practice of Pacific history and Māori studies. The site of resolution is where he discusses evil spirits and foreign beings to bring forth new meanings (Reilly, 1993).

For Reilly, Pacific and Māori studies offers new perspectives to history. Pacific studies looks to shift the focus of history from an understanding through colonial power to the reflection through the perspective of Oceanic, Moana (Pacific) people. Reilly states Māori scholars' attempt to 'escape from the textural boundaries' (Reilly, 1993, p. 7) of academic ethnographic traditions by focusing on the 'Māori texts which lie under this published corpus' (ibid.). Māori scholars also attempt to understand the methodology of scholars of historical texts to discern 'shortcomings and their achievements' (ibid.). Reilly (1993) suggests these perspectives stem from Edward Said's well-known text *Orientalism* and argues that Pacific scholarship, much like *Orientalism*, serves to 'authoritatively unravel the threads binding historical scholarship to the expression of political power and hegemony' (Reilly, 1993, p.7).

Reilly (1993) states he draws on a process of deconstruction and supplementation of earlier texts to reveal something on the margin. For Reilly an unknown text is grafted to a more known body of writing or an element of a text that is

marginal is chosen and moved to the centre of focus. Drawing on Derrida, Reilly states 'the logic of supplementarity as it is termed is put to work as an interpretative strategy on the assumption that such marginalised elements might reveal something significant about the matter of the work' (Reilly, 1993, pp.7-8) which was ignored by previous analysis. To focus on the margin of a text subverts previous interpretation and the privilege of one element over another. In doing so it displaces opposition and 'has the potential to forge new connections between textual elements' (ibid.).

From here Reilly goes through the process of 'resignification of minor elements' (Reilly, 1993, p. 8) and grafting of Manganian textual history. Reilly focuses here on Gill's retelling of 'Echo; or The Cave Fairy' that Gill categorised as a 'miscellaneous myth'. Reilly describes the insight the story has to the founding of Mangania and thus regards it as an important narrative. According to Reilly the work of Mamea gives further evidence to the importance of this narrative. Mamea's version gives place names that provide locations for these encounters and 'presents a richer and more complex understanding' (ibid., p.9) of the significance of the narrative in cultural understandings.

The work conducted by Reilly is important in that he brings to the fore elements in the text that lie subsumed in the work of Gill and Hiroa. The significance of his work is the foregrounding of indigenous voice through the grafting and centring of the work of Mamea.

The process used here by Reilly serves the same function as what I attempt to achieve through this chapter. That is exposing the layers of text to draw the contested material into view. This process is conducted with the intent to arrive at new conclusions about Manganian society. In particular, our continuum and where our tupuna tū, stand in presencing, and

tū kē, stand in difference. Doing so strengthens the notion of the Manganian continuum and the position of the research. The next section discusses the key component in genealogical continuity, and thus the continuum: intergenerational knowledge transfer. Again drawing on Reilly, we pinpoint the specific era and unveil the complexities in knowledge transfer and conversion to Christianity.

Complexity of knowledge transfer - indigenous voice

Oral traditions from the 'Are kōrero (experts)²² have been recorded since the 19th Century. Reilly states that the 'recorded oral literature serves as a substratum or 'under-texture' (Reilly, 1993, p. 3) within the corpus of published works on Manganian history and society (ibid.). By Gill's arrival to Mangania many leaders had experienced the pre-Christian Manganian society or were taught by someone from the pre-Christian era (Reilly, 2009). Knowledge of traditional customs still existed and Gill was well informed by people whom had participated in most practices, if not one generation removed. However they themselves were Christian and this influenced the way in which they viewed traditional practices.

Local pastor Mamae was acknowledged by Gill as the source of material for *Myths and Songs from the Pacific*, published in 1876 and *Historical Sketches of Savage Life in Polynesia* published in 1880 (Reilly, 2009). However I suggest the informants found themselves in conflicting positions.

Mamae²³, an 'orometua (pastor) and Gill's "informant" from the kōpū (clan) Ngāti Vara, was raised by his grandfather, Koroa, a former Mangania (high chief) and poet. His grandfather

²² Not all Manganian tribes are represented. The stories come from particular tribes and families.

²³ Also known as Koroa-iti after his grandfather meaning little Koroa. His baptismal name was Sadaraka (source).

passed down knowledge to him through songs and stories of genealogic links to the ancestors, cosmology and warfare. This knowledge was specific to his ancestral lineage.

He was the first Mangaian pastor for the Tamarua church and became the deacon for the Oneroa church (Reilly, 2009). Mamae's role as an 'orometua reflected his embrace of Christian religious values. These values influenced his opinion on some religious acts conducted under the traditional system; however this did not restrict the detail in description of events in his narrative.

Reilly (2009) contends that Mamae's text, in comparison to Gill's, gives highly detailed reference to place names, landscape detail and societal values, like tapu, within the events of the story he retold. This suggests the importance of the material to knowledge transition from generation to generation. This is Siikala's genealogical continuity. The potential for the continuum to stand in the recordings made by Gill and Hiroa are shown through the perspectives of Mamae and Aiteina²⁴.

Unfolding knowledge transfer to find connection

There is a relationship between the complexities of colonization in Mangaia and knowledge transfer. To locate the continuum and the place in which our tupuna stand we must understand the dynamic behind knowledge transfer.

Hiroa (1934) describes the culture of Mangaia as having been 'profoundly affected by western culture' (ibid., p.8).

²⁴ Aiteina is Hiroa's primary source of information in his field work. He was the son Mamae, himself a preacher. Hiroa also drew from Akaeakoe, a pastor from Ivirua (Hiroa, 1934).

He states:

The inferiority of many of the old customs and institutions was so impressed upon the minds of the Mंगाians by their new teachers that they not only gave them up, but (also) even tried to forget they had ever existed. When I asked an old man what the old people (ai metua) thought of a certain native institution, he replied, "Pe'ea taua e kite I te manako ate 'etene?" (How can you and I understand the thoughts of the heathen?). (p. 8).

However Reilly's (2007) essay *Transforming Mंगाia's spiritual world: Letters from the early Christian community of Oneroa* argues, in a contemporary context, that the acquisition of Christianity was not a passive act. The paper discusses the impact of colonialism on the "mental universe" of early Mंगाian Christian people. It does so by tracing the acceptance of Christian values through the "particularity" of the people's language. Drawing on letters from Mंगाia, from 1841 to 1846, as the primary source for this investigation, Reilly contends 'the missionary domination of Mंगाia's language and "mental universe" was never complete' (Reilly, 2007, p.53). He acknowledges that the letters he draws from, confirm aspects of inferiority were invested into the language of Mंगाia, as positioned by Hiroa. Reilly (2007) states 'the adjectives they (the letter writers) use to compare and contrast the material wealth of their own island and that of the English brethren' (ibid., p.52) reveal this. In the same set of letters, deprecation is also present through the writers' descriptions of their pre-Christian selves as being 'matapo (blind) and poiri' (dark, darkness, without light) (Reilly, 2007, p.52).

Reilly (2007) also proposes that subordination was confined to material things, as in the comparison between Mangaia and British land, and the integration of a Western economic order. This was done through fundraising efforts of The London Missionary Society Auxilary in Mangaia. The Auxilary 'became a device whereby Mangaia's Christian leaders and people learned to participate in the international market place' (ibid., p.40). Commerce was used as a tool to help church members 'advance the global mission work' (ibid.) and as a civilizing agent. Additionally Reilly suggests that churches formed through colonialism held connection to pre-Christian world beliefs and customary practices, though they set themselves apart physically and spiritually.

For example Reilly uses the term ora, 'the state of being alive and being well' (Reilly, 2007, p.43), to demonstrate the transfer of a Mangaian concept to Christianity. For early communities gaining the ora of Christianity was powerful. The new God was referred to as the 'atua ora' (ibid.), and the Gospel as 'ora mutu kore (endless life)' (ibid.). This he suggests reflects the integration of indigenous value into a Christian system.

Again this drive to convert to Christianity was evident through the Mangaian belief that the afterlife only applies to warriors and chiefs. Conversely Christian scripture, as stressed to Mangaians by Tahitian missionaries, states that 'anyone who believed in Jesus Christ would enter into a heavenly life after death' (Reilly, 2007, p.43). The decision is made from their worldview of the existence of an afterlife. Conversion to Christianity allows access to a heavenly afterlife as opposed to a journey through Miru (fire) for ordinary people (Reilly, 2007).

Summary

Though our tupuna stood in the presence of a new god and economic structure, they did so through the lens of our values. They stood where they sought to gain mana through the control of resources. They integrated customary practices into new structures, a way of keeping the old in the new. The key outcome from this analysis is that an important concept for Manguaia is that continuity is present through change. Therefore our tupuna stood, tū, in tū kē (stand in other), in the presencing of difference, while tū, standing and presencing in continuum in relation to tupuna and atua.

The significance for the research project is that the notion of the Manguaian continuum is strong and present in the context of my practice, in the function of proximal and distal between implicit and explicit knowledge, through inherent knowledge in the gene archeological matter and has currency through reciting the written texts of Gill, Hiroa and Reilly.

Continuity through change, transformation and the new, allows for new interpretations of our knowledge from tupuna, whether received as implicit or explicit knowledge. This value is essential in the Manguaian way of being in continuum. It allows for new developing approaches, by drawing together old ways and technology. For the scope of the research project it allows the exploration of new media technologies, new imaging and imaginings in tū (*stand*) to presencing of ancestor, by 'akapapa'anga and tu'i to continuum.

The next chapter seeks to unfold the Manguaian continuum through Manguaian cosmogony. The voices of Mamae and Aiteina are foregrounded in these accounts. These narratives will unfold a speculative premise for the Manguaian continuum.

Chapter Three

Mangaian continuum

In this chapter I discuss the notion of connection, the Mangaian continuum, through recounting the Mangaian cosmogony from primordial matter to the human realm. To do so I draw on the ethno-historiographical record of this narrative. I consider this connection, within the scope of this research project, to conceptually unfold in two ways. The first is through the omnipresence of matter and energy in the material of all things in the Mangaian universe. The second is through genealogy that is the generative and iterative process of procreation, otherwise conceptualized through this project via Refiti's (2008) gene-archeology. Through a speculative form of comparative analysis of two key texts by Te Rangi Hiroa and Gill, a third interpretation that I make emerges.

This third reading offers points of relation to stitch the Mangaian continuum to cybernetics of the first and second order. This is done in an effort towards answering whether an equivalent relation can be made between the two and to what extent that this relation can be experienced in the interface of media art practice.

The first point of reference from Manganian cosmology (drawing on both Te Rangi Hiroa and Gill as discussed in Chapter two) is a notion of flux, the transition from energy to matter in Mangania's four primordial beings. In the next chapter I will relate this notion to Wiener's principle of feedback and Von Foerster's notion of circularity derived from Cybernetics of the First and Second order. I do so to develop the notion of the Manganian cybernetic continuum.

In studio practice this transference between states is analogous to the relationship between the digital and physical space. This relation between matter and energy suggests the multidimensionality of space and time. Within my studio practice I test how multiple worlds may be combined by vision technology, for instance the Oculus Rift or the use of web cameras to track movement in the physical realm that influence the digital realm.

The second link, the generative and iterative process of genealogy that demarcates time, unfolds a doubling/coupling within matter and energy that stems from the apex of the four primordial beings. This takes form as a combination of bodies (matter) and spirits (energy)²⁵ that is in all things from atua (gods), manu (animal), 'enua (land, ecology) and tangata (human). In practice this doubling/coupling comes to the fore in the relation between the event in the physical space and its effect on the digital. The doubling and coupling of matter and energy is a conceptual driver for avatar design.

²⁵ There are possibilities to manifold multiple folds more than the two I present here. However this is beyond the scope of this particular research project.

Flux

I begin this section of the chapter by recounting the manifestation of flux through the Manganian cosmogony. This is present through the relation of matter and energy through the primordial beings.

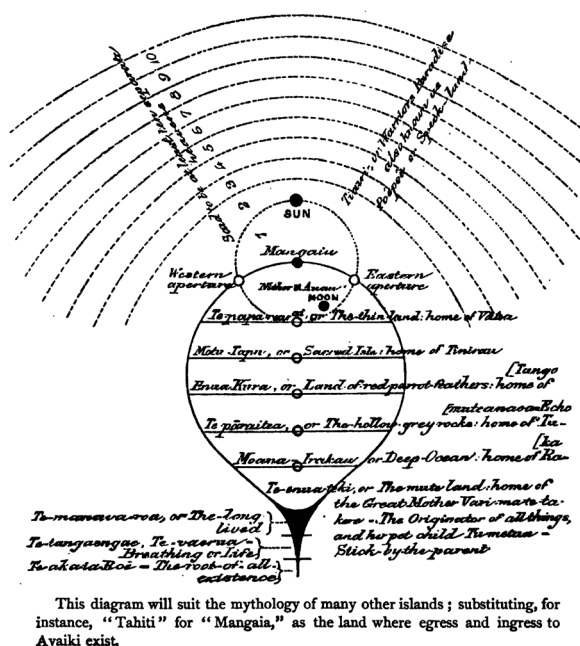


Figure 8. Gill's Diagram of Mangaia's universe (Gill, 1876)

Mangaian world and primal beings

The Mangaian universe is multidimensional where an outlay of substrates presents the divergent realms. Gill (1876) describes the Mangaian universe as 'a hollow of a vast cocoa-nut (coconut) shell' (ibid., p. 1) (see Figure 8.). The interior of this shell is Avaiki and it contains many substrates that are lands at various depths. Directly above this, the exterior to 'Avaiki, is the human realm. Above the human realm are several different strata that are occupied by warriors after death.

At the base of the coconut, below 'Avaiki, Gill describes a thick stem that tapers to a point (see Figure 9). Here exist three sentient beings²⁶ that are devoid of human form. These beings are primordial material and I propose are in all matter that make up the Mangaian universe. The unfolding of the Mangaian cosmogeny, the creation of space, time and being comes into itself and into knowing through these primordial beings.

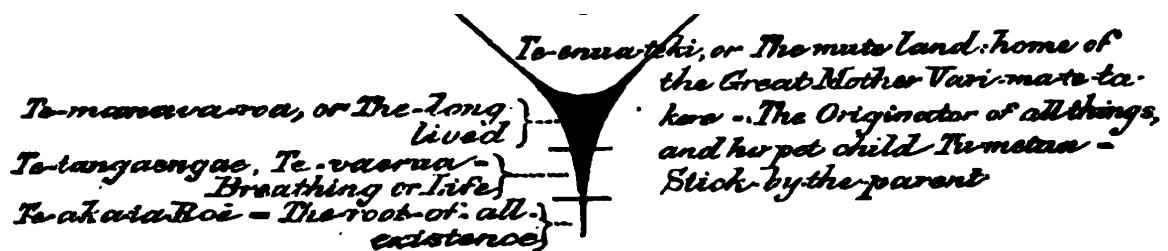


Figure 9. Gill's diagram of Mangaian Universe. Close up of the base of Avaiki where the primordial beings are said to exist (Gill, 1876).

This unfolding of space and time presents itself in a way through creating digital worlds in my art-production within this research project. When I make a 3D digital world I unfold a space, through the demarcation of x, y and z coordinates. I am able to place myself into this space through a digital avatar. I observe the environments I create as well as my sensory experience. As I transgress through these unfolding digital spaces, I encounter time.

The first primordial being is Te Aka-'iāroe (Te-Aka-ia-Roe), The return of all existence. This being sustains 'the fabric of the universe' (Gill, 1876, p. 2). Gill then places Te Tāngaengae (*breathing*), also known as Te Vaerua²⁷

²⁶ Gill considers these beings as spirits or demons.

²⁷ Hiroa (1934) suggests this is incorrect. He contends that Gill has misunderstood Mamae's reference that descriptive Te Vaerua, 'the spirit' is applied to all of the sentient beings.

(life) on top of Te Aka-`iāroe. This spirit is stronger and stout. Above this is the thickest part of the stem and is Te Manava-Roa, the long-lived. These sentient spirits constitute the foundation of the Mangaian universe and ensure its permanence and wellbeing (Gill, 1876).

At the base of the interior of the coconut shell, `Avaiki, is Vari-Mā-te-Takere (*the very beginning*). Gill (1876) describes Vari-Mā-te-Takere as a woman-demon of flesh and blood. She lives in a narrow space, so narrow that her chin and knees touch. She wanted offspring; therefore plucked, in total, six children from either side of her torso. These offspring and their subsequent children are the gods of Mangaia and descending from them are its original tribes. I will focus on the significance of Vari-Mā-te-Takere and the coming into being of tangata in the second part of the chapter. This transformation of semi matter to the material form of tangata offer insights in a way to read the mapping that occurs in the relation between digital and physical space in my artwork.

Hiroa (1934) in his precise analytic style differs a little from Gill. His translation of Mamae's description of the foundation of Mangaia describes four sentient beings that are recited in order of physical proximity to Mangaia. Each has its own Enua²⁸, in its own distinctive space. Unlike Gill, Hiroa states they are of the same form, spirits.

Both Hiroa (1934) and Gill (1876), place Te Aka-`iāroe as the primary spirit. Gill describes this as 'a quivering, slender, wormlike point at which existence begins' (ibid., p. 1). Hiroa states that this point represents the beginning of existence; however, unlike Gill he does not consider that this spirit represents the universe. Hiroa writes 'according to Mamae²⁹, the four spirits occupied definite

²⁸ 'Enua is land. However Mauriati et al. (2006) also use the definition territory.

²⁹ Hiroa is referring to Mamae's manuscripts.

lands ('enua)', of which he gives names (Hiroa, 1934, p. 9).

Mamae says 'Koia 'oki te 'aka'ui'anga, aore o raro atu. Tera tona 'enua o 'Avaiki-te-'akaoti' (ibid.). Hiroa translates this as 'he (Te-aka-ia-Roe) was the last, there was no one below. His land was Hawaiki³⁰ - the last'.

In Reo Māgaia I te reo papa'ā, Puka 'āite'anga tara (English translation), Mauriati et al. (2006)³¹ define 'aka'ui'anga' as end and translate the above sentence³² as 'It is the deepest end of the world. There is nothing below'. They also define Te Aka-'iaroe³³ as '"the germinating root", the mythical spiritual existence in the deepest layer of the netherworld' (ibid., p.447). They also state that 'there are three other layers, all of which are personified and deified' (ibid.).

I speculate here that, unlike Gill, Hiroa considers Te Aka-'iaroe as having a specific context by being confined to an 'enua, a landmass. Thus he did not consider Te Aka-'iaroe as universal, that it could constitute the universe. However, through the lens of the Māgaian continuum and gene-archeology, these things are in connection. I believe these primal beings are the microcosmic makeup³⁴ of all things.

Te Aka-'iaroe is a plane in paradox, the beginning and end. It has creative potential, a universal constant. This creative potential is flux(ing), a continual cyclic becoming, create/terminate. It is a multidimensional being (atua/place/force/energy). It is said to taper to a quivering point from which all existence begins (Hiroa, 1934), a germinating root at the deepest, darkest, end of the world in Avaiki (Mauriati

³⁰ New Zealand Maori word for 'Avaiki, 'the underworld'.

³¹ This is a Māgaian dictionary, printed in 2006, edited by Māgaian scholars from the community.

³² Mauriati et al. (2006) draw from this passage to define the term in the dictionary.

³³ Written according to Mauriati et al. (2006).

³⁴ I believe there is a relation, conceptual or analogous, to quantum physics. This is research beyond the scope of this project.

et al., 2006). It is that which sustains the 'fabric of the universe' (Gill, 1876), which I suggest in turn is in everything in the universe.

Nothingness (symbolic potential), the deepest darkest part of Avaiki, is offered in my art work through the use of black. In a former painting process I would start with a black surface and work my way out, from this darkness. In a sense, to ata. In a similar way, within this project, when I open the Unity 3d software, to create a 3D digital world, I am prefer to build a work from a blank dark space.

The digital space that is offered to me in the software, at the inception of the world I create, is one of suspension. By this I mean, if I placed a digital avatar of myself within this space, without a terrain (a land to ground myself on) I would fall. I do not see or feel this sensation as there is no point of reference in the digital world for me to perceive this transgression through space. However this is what my digital other would encounter. *A question occurs; if there is no light in the digital sphere and I do not see or feel the fall effect in the physical world, am I tied to it in continuum? Is this the invisible or hidden part of Ata, or the porosity of information?* (see Chapter Four, p.95).

According to Hiroa (1934) the second sentient spirit is Te Tangaengae. Gill names this "breathing". Hiroa states 'the word also carries the meaning of the movement of the ribs during breathing' (ibid., p.9). 'Tona 'enua o 'Avaiki-te-araro' (ibid.), the land of this spirit is Avaiki-the lower, according to Hiroa. For Mauriaiti et al. (2006) Te Tangaengae is (prop.n) 'breathing', 'the spiritual existence in the netherworld, between the deepest layer and the third deepest layer.' (ibid.).

The next sentient being is Te Manava-Roa according to both

Gill and Hiroa's account. Gill translates this as 'the-long-lived'. Hiroa writes 'The word conveys the idea of a continuation of breathing. The term manavaroa is applied to persons of sound wind whose breath will hold a long time' (Hiroa, 1934, p.9). According to Mauriaiti et al. (2006) Te Manava-roa is defined as the 'long stomach', the spiritual existence in the third deepest layer of the nether-world (ibid., p. 497).

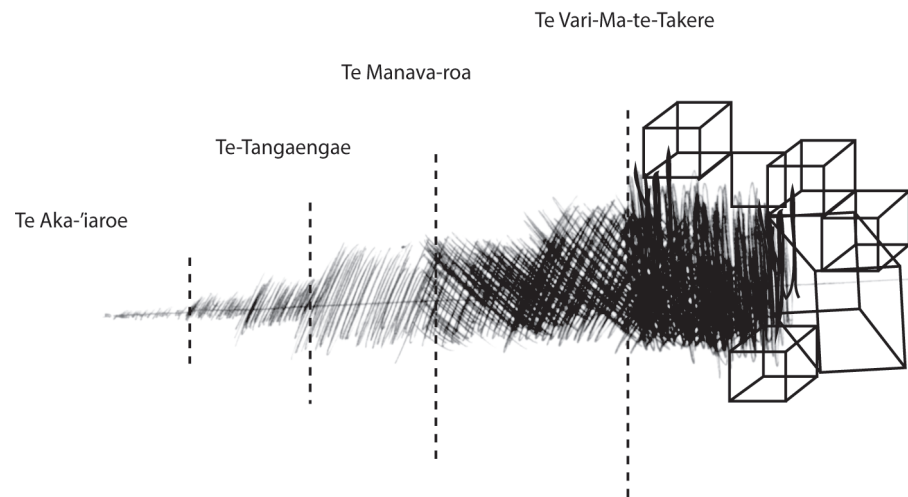


Figure 10. Drawing of transition, flux in the Manganian continuum. The focus here is the flux through the primordial beings from energy to matter (Tapuni, 2016).

Yet for Mauriaiti et al. (2006) the word manava has two definitions, one being the stomach and the second, 'Nature, disposition, temper' (ibid., p. 211). It is used to describe say a bad tempered man, 'E tangata manava kino tera' or matters of the heart, 'pou toko manava, that which fully supports the hearts desires. Manava is internal, an interior space that usually references a person's internal body or internal emotion. Breaking the word down into mana and vā we open the word to further interpretation. Mana - prestige and power (whether increased or diminished), vā - 'gap,

intervening space or distance' 'period of time, interval, 'be or come apart', have time be free' (ibid., p. 552). Together, an internal power in an intervening space, which is folded into time. This is a central concept for the time-based art media. In a sense a 3D digital world, like the ones I create in my art work, are pockets of internal spaces that exist, or occur, as intervening space that encapsulate time.

The fourth is Vari-Mā-te-Takere. Gill translates Vari-Mā-te-Takere as "the-very-beginning". Hiroa breaks the name down as:

The word vari, however, also means "mud", and taken in conjunction with takere (canoe bottom or keel), the name literally means "The-mud-and-the-bottom"; It suggests the mud on the bottom of the figurative coconut shell. Vari is the mud of taro swamps and connotes potential plant growth. As applied to a female, it means the menses and conveys a connection with the female womb and the origin of human growth. (p.10).

Mauriaiti et al. (2006) define Vari-Mā-te-Takere, prop.n. as the mud and the keel. Abbreviated, Vari is 'a goddess, symbol of maternity; mythological fourth deepest existence/spirit who produced six children, three from either side of her body - the earliest Manganian people; these children were half-fish and half-human' (ibid., p. 560). Vari is the substance in which things grow. She was confined to a narrow land where she sat kneeling. Its name was Te Aiti I te apiapi³⁵ which Hiroa defines as "narrow-land-where-little-could-be-done".

³⁵ Hiroa (1934) suggest Gill mistakes Te Aiti as a description rather than a proper noun leading him to the error that Vari lived with her daughter in the land Enua-te-ki.

I suggest Vari-Mā-te-Takere represents the creative potential and is the apex of the four primordial beings. She is the combination of the quivering slender-shaped energy, a state of flux that becomes breathing that expands, contracts and extends through the pulse of life breath to the semi-formation of matter. I contend her progeny, the Manganian atua, their tuāurangi (*sacred animals*) and enua (*land, ecology*) that is afforded to them and the Manganian human descendants formalize the process of matter and energy. As I mentioned above this discussion is important as it unfolds as a reading of the network between the digital and physical space.

The four primal beings in Manganian cosmology constitute energy and matter. Te Manawa-Roa transmits Te Tangaengae from the point of Te Aka-'iaroe, the quivering paradox, resonating energy, the flux of becoming, to Vari-Mā-te-Takere who materializes as 'the mud and the bottom' (Hiroa, 1934) of Awaiki. They resonate from an energy point to substance.

I suggest that these primal states are in the fabric of all things in the universe. In so being they are part of the universe, are in the continuum, and therefore are present in my art practice. This is through Refiti's gene archaeology, in the function of, my process of making, and the output of art production, where these primal beings mark the material fabric of my work. More importantly, for this research project, it is the relation of flux that is of interest. That is I draw on the transmitting element between these primal beings, as a concept of flux, where I begin to map the Manganian cybernetic continuum in the relation to my media art practice.

Spatial arrangement

The multidimensional outlay of substrates that present the various realms of the Mangaian universe are positioned in divergent means in these texts. Gill (1876), for instance, contends that these primordial beings are positioned one above the other and taper to a point as does the root of a plant. They exist at the bottom of 'Avaiki. However Hiroa (1934) argues that these beings are recited according to their proximity to Mangaia, and each possess their own land, in their own distinctive space and exist at the extremities of 'Avaiki.

As I have mentioned above I understand these four sentient beings to be multidimensional; they are omnipresent in the fabric of all things. They are present in the formalization process of matter and energy, the transformation of energy into matter, and in the generative and iterative process of genealogy where time is punctuated and expanded. However at the same time, temporal distance is flattened so multiple time periods exist in parallel; matter and energy are omnipresent.

Such concepts resonate with quantum physics and the general Tā-Vā theory³⁶, developed by Dr. 'Okusitino Māhina, Dr. Tēvita O. Ka'ili, Dr. Nuhisifa Williams and Dr. Telēsia Kalāvite. Similarities can be found in the notion that all things stand in a relationship of exchange (giving rise to comfort and order) and that tā (*time*), vā (*space*), fuo (*form*) and uho (*content*) are indivisible (Māhina, 2010). I discuss a similar concept in the section below.

In relation to my practice these concepts are reflected in a folded and flattened sense of temporality. That is important to my engagement with the Unity 3d gaming engine

³⁶ This is a theory of time and space based on concepts and practices from what Dr Māhina refers to as Moana (Oceania, Pacific) (Māhina, 2010).

and the Oculus Rift, an immersive headset (see Chapter Six, p.149).

Gill's aperture - transition between worlds

As I have already recounted in the introduction to this chapter, Gill (1876) describes the Manganian universe as 'a hollow of a vast cocoa-nut (coconut) shell' (p.1). The interior of this shell is 'Avaiki and it contains many substrates that are lands at various depths. At the top of 'Avaiki there is an aperture in which communication is made outside the human realm. The description of this connection as an aperture (see Figure 11) has a mechanical value; however it offers poetic possibility for digital art practice and this section explains this productive metaphor in my work.

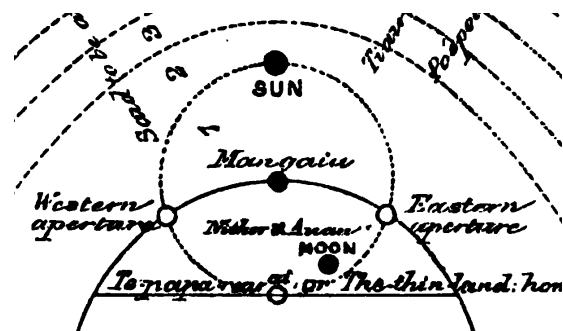


Figure 11. Gill's diagram of the Manganian universe, close up of the aperture between worlds (Gill, 1876).

The aperture that occurs between 'Avaiki and the outside realm allows the communication between the atua in 'Avaiki and its descendants, the people of Mangaia. This aperture is the way in which Gill envisages the link between the interior of 'Avaiki and the exterior world. It is the way in which transition occurs between the worlds.

I believe this aperture is not a fixed device or hole, but is a portable threshold, an opening, gap (vā) space that

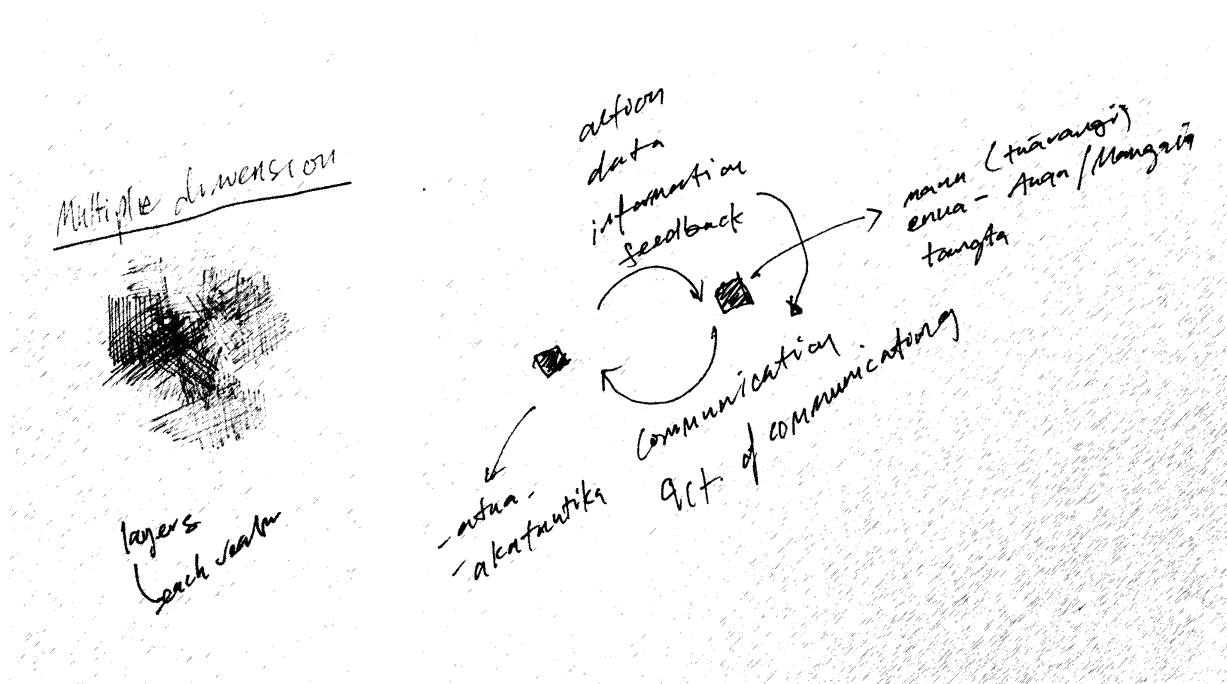


Figure 12. Illustration of the layering of multiple dimensions and the circularity and act of communication (Tapuni, 2015).

has many manifestations in Māngaiān philosophy and material culture. In other words there are many forms of connecting the material and immaterial realm through the negotiation in and of ritual, and the everyday function.

For instance the marae site in Māngaiān is a site-specific ritual space in which the community connected to the atua. New Zealand academic, Jeremy Treadwell, states 'the marae was the arena in which the present intersected with the past, a past of gods and ancestors, all of whom contributed to the events of the present' (Treadwell, 2015, p. 327). In Māngaiā it was a space that had multiple purposes, a site for ritual connection to a particular atua of the marae, a site for communal politics and confirmation of land ownership (ibid.).

This is a binding of sorts that bears a resemblance to the philosophical use of sennit braiding in Māngaiā. Academic

Rod Dixon (2015) states:

Tatuaka'a or lashing, in both its practical and ritual manifestations, was the means of strengthening and preserving an adze, a house, or a canoe and, ritually and metaphorically, the state. In its ritual manifestations, the sacred ka'a tied people to chiefs to gods in the same way as in its secular manifestation. (p. 410).

All events on the marae were conducted in the presencing to ancestor and flattening of space/time.

Another example of a binding aperture is the god houses. These thatched structures housed the invisible, immaterial manifestations of the atua. Gill alludes to this in his description of the desecration of marae spaces by Christians. He writes 'The day the idols were removed, the house in which they had been kept was set on fire; the maraes all over the island were desecrated, the little houses in which the deity was supposed to be invisibly present were burnt' (Gill, 1894/1994, p. 334).

Treadwell(2015) states that these structures:

transcend the storage of material form to become a 'dwelling' for the immaterial. In this sense, the building ceased to function as an actual interior space; instead, it operated symbolically as an exterior form to mediate relations between people, and between people and gods. (p. 344).

This approach of an openness of the interior, to expose the interior to the exterior is an unfolding of the aperture and hole structure, a becoming. This is pertinent in the

performance of the body, the movement in dance and articulation of words in chants. It also resonates in practice where an internal dwelling is open through the process of making exposing the practitioner to the continuum, connecting the artist/maker to the ancestor.

Two things occur here that are not mutually exclusive: the action of communication (the doing) and the form of structure or site for the act of communication. I believe the incantation/chant/motion/action (communicating) is in itself an opening. It is space forming, the opening of the body, bodies, in gathering to the atua and each other in an effort to open space. That is, specific resonating sounds, actions and motions, open thresholds. The aperture or opening and the communicating (resonating sound, action, motion), appear to be the same. Here structure, form and ritual (content) continually folds and unfolds within itself. This is a binding like the use of sennit above and the general Tā-Vā theory. The importance of the communicative potential between worlds is also linked in the next chapter to the development of cybernetics.

The next section will trace the formation from the Vari to her anthropomorphic offspring to the original human inhabitant, Rangi. I focus on Avātea's genealogical line as this follows the coming into being of Mangaia. I do so to trace the connection from the sentient beings to humans. I will recount a sense of continuum from the primordial to the human.

the generative and iterative process

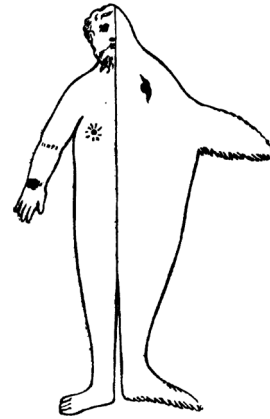
From the apex of the primordial beings manifested in the matter of Vari-Mā-te-Takere we arrive at her anthropomorphic offspring. Her offspring, our atua, bring into being the doubling/coupling of matter and energy, form that comprises of body/spirit, night/day, dark and night and all things in-between. I suggest these elements are in continuum where one is the extension of the other, where other is same. This is a generative and iterative process that unfolds through genealogy connecting past and present. This is reflected in my art practice through the opening of an internal dwelling when making, through the gene-archaeology of my make-up, the material output of mark making in the in my artwork and the generative iterative strategies of recursion in my practice.

Atua, offspring of Vari-Mā-te-Takere

Gill (1876) states that Vari plucked her children from the left and right sides of her torso. Hiroa (1934), however, describes this process by drawing on the 'association of plant and human growth in the Manganian mind' (ibid., p.10). He suggested beings with human characteristics grew within Vari. They sprouted on either side of her body 'thorax below the armpit' (ibid.). They then were picked off from her body. Hiroa states 'picking (aki'akia) is used with reference to picking mature or ripe fruit' (ibid.). For Hiroa, the Manganian concept of growth within fertile vari (mud) is a predominate idea.

Her progeny in order of creation are Avātea³⁷, the second is Tinirau (*innumerable*), and both have the form of man and fish. The third is Tango (*support*), the fourth is a female

³⁷ His name is sometimes abbreviated to Vatea



IMAGINARY REPRESENTATION OF VĀTEA.

Compare with this a remarkable picture of a fish-god, from Layard, in Smith's Dictionary of the Bible, p. 381 (central picture).

Figure 13. Illustration of Avatea (Gill, 1876).

deity, Tumuteanaoa (*echo*), The fifth is Raka (*trouble*) and the sixth, Tū metua (*stick (stand) by the parent*).

Vātea is the father of descending atua and tangata of Mangaia. He is known to be half man-half shark. It is his line that the original tribes of Mangaia descend from.

Gill (1876) describes Vātea as being split down the middle; a division between human and animal (see Figure 13). On the right side of his body he has human features and on the left side of his body Vātea possesses the features of a shark. However Hiroa (1934) suggests that Vātea's body is not a split form comprising of a half human-half shark being as described and illustrated by Gill, but rather Vātea possesses a spiritual form that is human and the material incarnation takes the form of a fish. He states 'As Mamae says Vātea has two bodies, it is possible that the spiritual form was human and the fish form the material incarnation. The same applies to Tinirau, who had two forms' (ibid., p.14).

This doubling of form, matter and energy is of interest to my practice as a way to conceptually relate the interactive process that lies between digital material and movement

in the physical realm. This is done by a live webcamera tracking system that feeds data from the physical world into the digital world.

From the primordial apex, the semi-formal substance of Vari-Mā-te-Takere, a shark form with human essence, is pulled. The human in Manganian cosmology first resonates as a spirit form, a spectral phantom that extends from matter that took the shape of a fish, an animal. This stage introduces the connection between animal and human, where one is the extension of the other, and is same. This phantom spectral form presents itself in past practice through the work *file corrupted* (2009) (see Introduction, p.11).

According to Gill (1876), Avatea had one human- and one shark-like eye that were rarely seen at the same time 'whilst one, called by mortals the sun, is seen in the upper world, the other eye, called by men the moon, shines in Avaiki' (ibid., p. 3-4)³⁸. His land is Te Papa-Ra'ira'i (Te-papa-rai-rai, the thin land) or Te enua-marama-o Vatea (the bright land of Vatea). Gill's description implies a contrast within Avātea; that of day, Avātea and night, Po, light and darkness.

Day and night, dark and light are in opposition to each other yet connected in one being. Again one is the extension of the other, and is same. A pattern begins to emerge where each form of being has another, an alternate form in continuum, the doubling/coupling. In Chapter Six I will return to the significance of this in both physical space and as a metaphor in my installations.

³⁸ Gill also notes here that there are other beings represented as sun and moon.

Anthropomorphic doubling to human doubling

From Vātea, the anthropomorphic shark body-human spirit form, I will briefly trace doubling/coupling through the genealogical link to the human realm of Mangaia. This concludes the genealogical connecting from primordial being to human being.



Figure 14. Ape figure from the 3d digital world of *kurosawa* (2015). This is an example of the doubling and coupling of form explored through digital practice in my artwork within the research (Tapuni, 2015).

Vātea and Papa³⁹ had five off-spring. The first were twins, Tangāroa and Rongo who were of full human form. Tangāroa came out of a boil on papa's arm (note head) thus giving precedence to Rongo who was born through the birth canal. Rongo is the tutelar god of Mangaia, he is said to live in the shadow of A'ua'u in Avaiki and feed on humanity. The third child, a male, Tonga-iti had the form of a white and black spotted lizard. He was worshipped under the name Matarau, the two hundred eye or the sharp sighted. The fourth child

³⁹ Papa-i-te-itinga, 'Papa is the earth crust or stratum [...] .The mating of light and earth is an old Polynesian concept. From this marriage the gods were born, and through them human beings came into the world' (Hiroa, 1934, p. 15)

was Tangi'ia and the fifth Tane-papa-kai, 'Tane, piler up of food' (Gill, 1876).

Rongo and Tākā had a daughter Tavake. It is said that Rongo had an incestuous relationship with his daughter that beget off-spring Rangi, Mokoiro and 'Akatauirā. These three atua are the original human settlers of Mangaia and the direct ancestors of the Ngāriki Ivi tribe. They lived on Auau in the shade with their 'grandfather' Rongo. However Rangi no longer wanted to live in the shade so he and his siblings pushed A'ua'u from the land of 'Avaiki into the upper world, into the light. They remained on A'ua'u (Mangaia) permanently. Rongo remained in Avaiki 'in the invisible or nether Auau (Akatautika) of which this island was asserted to be but the outward expression' (Gill, 1876, p. 16).

This narrative again relates to the doubling and coupling of body and spiritual other. With reference to my media art practice this is the link between digital and physical worlds. These amalgams signify the multidimensional quality in a being. In some instances the animal human forms represent the body/spirit (matter/energy) paradigm. Mangaian societal values begin to form in these narratives.

Conceptually this mutidimensional quality can be considered between the working interface of constructing a 3D world (this is where I bring make and create a world) and the space rendered space in which the viewer explores and experiences the world. In this manner , they are in essence the same world that go through transformation, flux from one form of function to another. Multiple purposes are encountered here the space that is created and the world that is experience.

In paragraphs to come I illustrate that the twofold paradigm is also associated to the environment and the human being. I discuss the role of mana and tapu in negotiating the

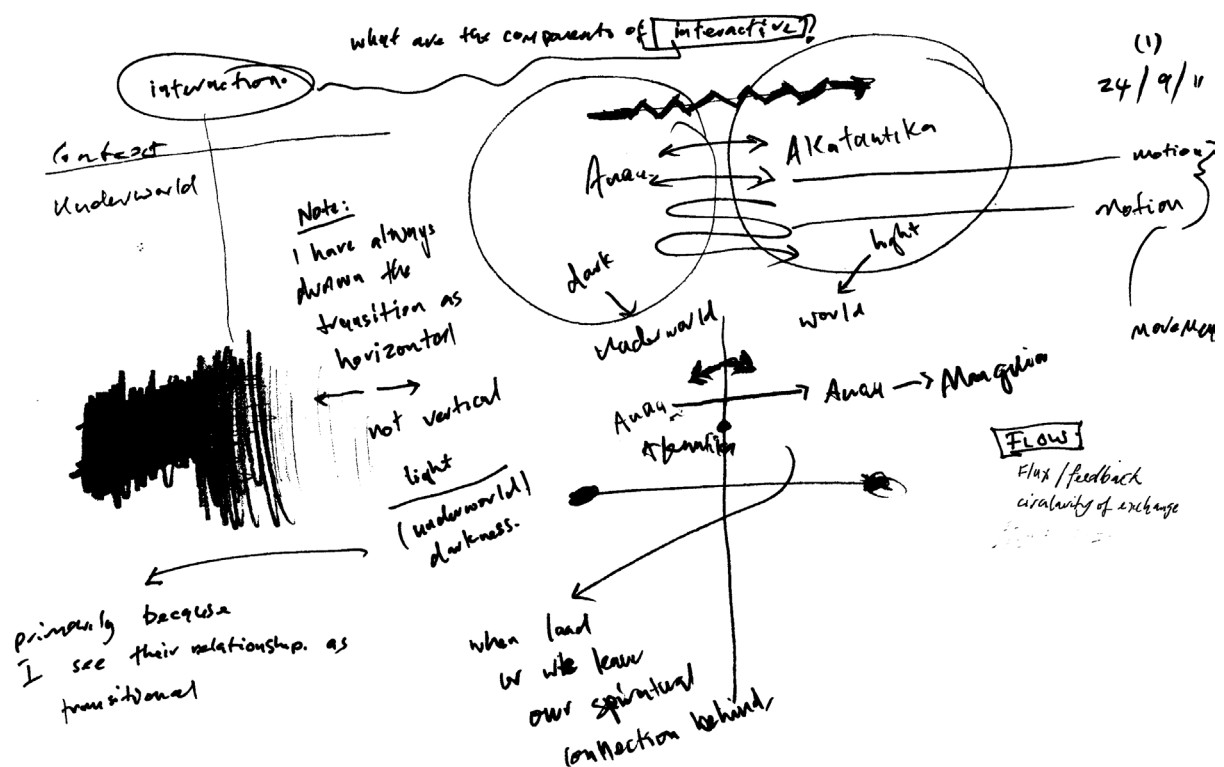


Figure 15. Illustration unfolding the interactive relation in the Manganian continuum by way of A'ua'u and 'Akatautika (Tapuni, 2011).

relationship between the animal, as the representative of Atua, and tangata (human). I speculate how these relationships play out in a contemporary context.

A'ua'u and 'Akatautika -form, body and spirit

The form of matter (body) and energy (spirit) in regard to enua (land) emerges in a passage by Gill (1876). He describes the separation of A'ua'u⁴⁰ from 'Akatautika⁴¹ in 'Avaiki as a body (A'ua'u) being separated from its spirit ('Akatautika). Gill writes 'As an individual consist of two parts, viz, body and spirit, so (too) this island has a sort of essence, or spirit, the secret name of which is

⁴⁰ A'ua'u (terraced) (Gill, 1876, p.16), is the home of the god Rongo and was located in the underworld, Avaiki. When dragged into day light by his sons, its name was changed to Mangaia.

⁴¹ Akatautika, the well poised (Gill, 1876, p.16). This is the secret name for what was known as Aua'u. It is the spiritual remnant of Aua'u that remains in Avaiki.

'Akatautika' (1876, p.11). This resonates with the way in which Vatea is conceived. In the underworld A'ua'u, the body and Akatautika, the spirit, are the same. When A'ua'u is 'dragged up to light' (ibid.) the entity of A'ua'u and 'Akatautika were separated.

I suggest that although this relationship at first appears binary, and distinctly separate, as do the form of animal and human, there is a symbiotic connection where one is the extension of the other, a continuum, where they in essence are the same. I believe this connection exists regardless of time and space. This is not a question that can be explained by scientific or positivist processes. How or why this manifests I have yet find an answer for.

Conflict tuārangi & tangata

The supernatural forces that intercede and often conflict with the human realm are an important part of the Manganian narrative that I explore in my practice. Contemporary historian Michael Reilly's *Ancestral voices from Mangania* (2009) argues that, the spiritual realm for Manganian people co-exists and intersects with that of the human realm 'the world of the gods and the land dominated by the chiefs were in the end two dimensions of the same universe' (Reilly, p.8, 2009). The relationship between humans and their environment is closely linked to the conflict between human beings and the supernatural, between the sacred and temporal (Reilly, 2009). This conflict is centered on the acquisition of land, resources and mana (*authority, high position, prestige and power*). The human society is connected to the spirit domain through prayer, ritual, human mediums, abuse, threat and violence.

The original human settler and high chief Rangi's initial exploration of Mangaia illustrates the intersecting natural and supernatural worlds of the Mangaian domain. These phantom-like presences have resonated in my past and present practice. It is a story of the discovery of place that sets a charter for cultural practice (Reilly, 2009). The story unfolds as follows; Rangi, being the first-born, self-appointed Mangaia 'high chief' and ariki pā uta, inland high priest had immense tapu. On this initial exploration of Mangaia, after he separated it from Avaiki, challenges to his tapu were made on two separate altercations with tuārangi, a fresh water eel, which attempted to bite him, and rats that ate his faeces. The role of these tuārangi was to protect Mangaia from intruders. This enraged Rangi as this offence to his tapu degraded his mana. As revenge he killed a rat and gave it to Papa to eat. This act signifies the ritual of sacrifice to the gods as a way to inaugurate the Mangaian title. This story illustrates the opposition between Tangata and tuarangi, human and the supernatural. The descendants of Rangi had to safeguard themselves against tuārangi (Reilly, 2009).

Key concepts come from this altercation with Mangaia's already established guardian spirit Tumuteanaoa and her family, anau manu (animals). Anau manu are infused with spiritual imagery. They intersect the human world with spiritual significance. To understand them is to understand human society (ibid.). Their strength and significance lies in their close ties as representatives of Atua. Animals signify the atua world as Tuārangi.

Tumuteanaoa's family are also anau tuārangi, a supernatural family, 'with tuarangi being a generic description for the world of atua ... such spirits beings could be harmful to humans' (Reilly, 2009, p.24). Reilly contends the 'term tuarangi embraces all the concepts concerned with atua, I'o

and vaerua and is a distinctively Manganian concept' (ibid., p53).

Atua could be measured by their influence on daily life. They are conceived as those that dwell in the day, at night, in Avaiki, and those that are worshipped to live or to die. These are I'o ora (live) and, I'o mate (die). Io means pith or core of a tree. The god is in man as pith is in a tree. Io is associated with atua and vaerua (Reilly, 2009). Mauriaiti et al. (2006) define I'o as 'the first and most sacred of the old gods' (ibid., p. 123). Gill situates I'o as equal to atua and 'Maemae associated the term I'o with atua and vaerua, spirits (Reilly, 2009).

Vaerua 'is a spiritual dimension of a person which could leave and return to the body both before and after death⁴²' (Reilly, p.53, 2009). Reilly goes on to further state that the word Tuarangi includes 'notions as back, side, face, distance, seas, skies and cloud: all referring to something away from an observer, beyond or back of something, outside, in the distance, on the horizon or in the heavens (ibid.).

Tuārangī were not all malicious or restricted to the spiritual realm distinct from land or people. They are linked. Tuārangī can also be linked to outsiders of the island, who come in, who are feared or are fearful entities, vaerua kino. The arrival of Captain Cook on a boat was akin to tuarangī coming from the spiritual realm that was not the realm of Mangania. This event was understood through the Manganian worldview (Reilly, 2009).

I suggest the notion of vaerua connects tangata to tuārangī, to the supernatural as this quality resides in them both. Yet as tangata the vaerua and kōpapa (body) must be protected from malicious tuārangī, the concept of tapu is used to negotiate this. This can be seen in Rangi's journey across

⁴² The spiritual form after death is known as tupapaku, ghost. The word is also used for corpse.

Mangaia to the transformation of Mangaia's religious and economic systems in the 19th Century.

These stories have relevance to conflicts in the contemporary world that are part of the subtext of the 'otherness', in *kē* and *tēta'i*, that is present in my artwork. In this millennium, new forms of *tuārangi* are emerging. Still there is a struggle with encounters of racism and the subordination of Oceania/Moana peoples. The world is shrinking in terms of ease of touristic travel and the global economy that impact negatively on Oceania in terms of the struggle for resources. Cultural values of community ownership are being supplanted by global capital accumulation and expansion by corporate interests into the Pacific. Work and social life is still based on a hegemonic relationship defined through colonialism and imperialism (Ratuva, 2009). It is a tactical failure of an order based on economic principles that refuses communal growth for indigenous communities. These challenges are challenges to *mana*; not only in the degradation of *mana* of a community but the greed of *mana* through the self-assertion of the singular. The challenge to the health of the Pacific Ocean, its fish population, rising sea levels, degradation of land through copper mining, the outcomes of nuclear tests in the ocean floor are scars on the *tapu* of our *atua*, ancestors and community as a whole. These forms of *tuārangi* degrade the *I'o ora* of the ocean and wellbeing of its people. Such is the situation capitalism poses.

Summary

The Mangaian world that interconnects the supernatural and natural dimensions is of the same universe and linked in continuum. From its origin, the beginning and end, a pulsating energy breathes. It shifts frequency as it extends in space

to form the growth material that is the fabric from which all things grow in this universe. The genealogical transfer of these sentient beings to atua, to animal and to human connects these various states together. These states are in constant negotiation. The conflict encountered between human beings and the supernatural play like a cybernetic system, an exchange, going towards an accumulation, a rebalance, a shifting of mana. In a contemporary context challenges to these interconnecting states have the power to be an irreversible destabilization of equilibrium. New ways of negotiating forms of mana and tapu that consider the well-being of the whole need to be found. The real challenge is to open formally closed knowledge systems and allow for innovative exchange to happen. The next chapter will connect the Manganian continuum to the cybernetics. My art practice contains both the sense of openness and also the generative conflict that have always been a part of the Manganian way as I have relayed in this chapter.

Mangaian continuum as a Cybernetic System

This chapter explores how the Mangaian continuum may be considered a cybernetic system. The relationships that I have outlined in the previous chapters are relationships in continuum; for instance the anthropomorphic nature of Avātea and the nature of A'ua'u and 'Akatuatika, I suggest, can be conceived as cybernetic systems for the purposes of my practice. The material and spiritual constitution of one comprises the other. In what follows I draw on analogy to map the notion of continuum to Cybernetics of the First and Second order. I will focus on the notion of feedback and circularity from Cybernetics of the First order and the role of the observer in Cybernetics of the Second order.

The discussion here investigates the extent to which the Mangaian concept of continuum may find equivalence in cybernetic systems and the extent to which the observer/researcher may become a conduit, in continuum, within the flow, where 'other is same'. The connections made through this section develop a series of concepts that I will use to interpret practice by selective artists, as well as my own, in the subsequent chapters. Specific cybernetic insights have been selected for discussion based on their relevance to my practice and to Mangaian cosmological schemas.

Overview of the origins of cybernetics

The word 'cybernetics' comes from a Greek root *kybernētēs* (kybernan to steer, govern) meaning governance. The term was coined by American mathematician Norbert Wiener in 1948, and according to Wiener it can be defined as a 'general study of communication and the related study of control in both machines and living beings' (Wiener, 1950, p.2).

Cybernetics originated out of military science, such as anti-aircraft technology of World War Two. It was founded as a scientific discipline at the Macy conferences (1941-1960). These were established by the Josiah Macy Jr. Foundation and were designed to encourage and facilitate interdisciplinary and multidisciplinary exchanges. The conferences were incubators for scientists from a range of fields where they could exchange ideas and discuss work in progress in formal and informal situations.

The cybernetic conferences were held in New York between 1946 and 1953. They brought together a diverse group of participants to set the foundations for a scientific discipline that explored the workings of the human mind in relation to machinic systems. These conferences led to advances in systems theory, cybernetics and later cognitive science. Art historian Pamela Lee (2004) suggests these conferences extended the discipline beyond its military foundations, in effect encapsulating the post-war desire to 'suppress the history of its origins' (ibid., p.236), the technological drives that led to World War Two, by considering the cultural implications of communication systems.

Key researchers who contributed to the foundation of cybernetics include mathematician, electrical engineer and cryptographer Claude Shannon of Bell Laboratories, who theorized the problem of information flow. He understood information as a measurable quantity. From this notion of quantifiable data he then applied statistical principles to resolve issues of the transfer of information. Psychiatrist and cybernetician W. Ross Ashby, developed fundamental ideas in cybernetics including homeostasis⁴³, the law of requisite variety⁴⁴, the principle of self-organization⁴⁵ and the principle of regulatory models. Anthropologist Gregory Bateson extended cybernetics through semiotics and mathematical logic to address aspects of interaction in humans and animals to theorize the notion of meta-communication.

Cybernetics in art

British interdisciplinary inventor and cyberneticist Gordon (Speedie) Pask became the conduit between cybernetics and art practice. Pask was part of the 'Cybernetic Serendipity' exhibition at the Institute of Contemporary Art in London in 1968 curated by Jasia Reichardt. It included artists such as Jean Tinguely, Edward Ihnatowicz and Nam June Paik. The works displayed were composed by cybernetic principles using computer controls and mechanical devices.


Pask understood a work of art 'as a system that evolved independently or in interaction with a participation' (Fernandez, p.54, 2008a). His theories involved interactivity, organization, intelligence, communication, learning and agency. Pask's aesthetically potent environments

⁴³ Active regulation (control) of a system to maintain stability.

⁴⁴ For appropriate regulation of a system, variety in a regulator must have the same or greater variety than the system it regulates.

⁴⁵ A system without randomness, deterministic, will automatically evolve towards a state of equilibrium

are 'environments designed to stimulate pleasurable interactions' (ibid.). The work should be familiar to the user at an informal and embodied level to make understanding and interaction intuitive (Fernandez, 2008).



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Figure 16. Pask's *The Colloquy of mobiles* in the exhibition *Cybernetic Serendipity* curated by Jasia Reichardt, ICA, London (Pask, 1968).

According to Fernandez, Pask's external environments result in interactions between the spectator or participant and an internal representation of the work. This, Fernandez suggests, is where 'the boundary between thoughts and reality is a fluid one' (2008a, p.54). Pask's *The Colloquy of mobiles* (1968) entailed five large automated motorized mobile structures that were suspended from a steel frame. Each mobile was programmed with a set of goals that 'allowed multiple levels of communication' (Fernandez, 2008b, p. 165). In order to achieve the goals 'the mobiles had to learn to communicate, cooperate and compete with one another' (ibid.). The mobiles were like autonomous robots and 'because of its capacities for interaction, the complex of mobiles constituted both a self-organizing system and an aesthetically potent and reactive environment according to Pask's own definitions' (ibid.).

One of the most far-reaching influences on the development of cybernetics in art was the American Art critic Jack Burnham. Burnham's book *Beyond Modern Sculpture: The effects of science and technology on the sculpture of this*

century (1968) explored a paradigm shift in art discourse. He proposed that the advances in a technological society would shift the importance of the formalist analysis of the sculptural object as object itself, to one where the implementation, the process, is important. This he coined 'System Esthetics' in an *Artforum* essay of the same title in 1968.

In this essay, Burnham considers technologically conceived artefacts that structured patterns of living in a technologically advanced society were going through a transition. A transformation from an object-oriented to a system-oriented culture where a system-based viewpoint would create stable relationships between organic and non-organic systems (Burnham, 1968b).

Systems in System Esthetics, Burnham outlines, are defined by concepts rather than material. This allows situations beyond the context of art to be created and analysed by a system (1968b). A system is made up of interacting components that 'comprise of material, energy, and information in various degrees of organization' (Burnham, 1968b, p.32). When evaluating systems, the artist must consider 'goals, boundaries, structure, input, output and related activity inside and outside the system - a system may be altered in time and space, its behavior determined both by external conditions and its mechanism of control' (ibid.).

For systems, information is an esthetic consideration, all phases of the life cycle are relevant; there is no end product. Examples of artists that Burnham understood as emblematic of a new systems esthetic included minimalists Robert Smithson, Hans Haacke and the kinetic artist Len Lye.

For the purposes of this project, I will focus directly on concepts developed by mathematician Norbert Wiener rather than artists' interpretations of cybernetic concepts.

Wiener proposed that the principles of communication between humans, animals and machines are the same and are articulated through the function of feedback⁴⁶. The project draws on this proposition of feedback as a way to discuss the digital interactive component in practice and how this may imply the Manganian continuum as a cybernetic system. In addition, scientist and philosopher Heinz Von Foerster's notion of circularity, that is observing systems, will become central to Chapter five and the discussion of artwork and the Manganian cybernetic continuum.

First order cybernetics, Analogy

Wiener's (1967) *The Human Use of Human Beings* discusses the social implications of cybernetics, drawing analogies between automatic systems, humans, animals and machines. Wiener suggests that both animals (biological systems) and machines (non-biological or "artificial" systems) can operate according to cybernetic principles. He contends that animals are machines and subject to feedback as they learn from feedback, adjusting to changes made in their environment. The desired result of the feedback loop is to maintain homeostasis, equilibrium within a system.

As I noted in Chapter Three, reciprocal relations between atua (*gods*), manu (*animal*), tangata (*human*) and enua (*land, ecology*), environmental systems are also central to Manganian foundational narratives. The use of analogy and metaphor to draw similarities and differences between systems is relevant to my project in that it is used as a method of speculating on a relationship between theoretical concepts of cybernetics and the notion of the Manganian continuum. The interplay between these systems through metaphor

⁴⁶ Other individuals whom informed cybernetics include Warren S. McCulloch, Margaret Mead, John von Neumann, and Heinz von Foerster.

transgresses perceived cultural boundaries and allows the constitution of new forms.

First order cybernetics, Wiener's principles

Wiener's early work, *Cybernetics: or, Control and communication in the animal and the machine* (1961) proposed that cybernetic systems occur where action in a system causes change in its environment. Subsequently that change, fed-back into the system, enables the system to change its behaviour.

Within this cybernetic system, Wiener connects control (a defined goal or purpose) with communication. This enables a connection for information flow between the actors and the environment. He suggests, for action and feedback to be effective, the dynamic requires communication.

Wiener (1967) considers change initiated by feedback loops in a cybernetic system as a process of learning and knowledge creation. He states:

[...] feedback is a method of controlling a system by reinserting into it the results of its past performance. If these results are merely used as numerical data for the criticism of the system and its regulation, we have the simple feedback of the control engineers. If however, the information which proceeds backward from the performance is able to change the general method and pattern of performance, we have a process which may well be called learning.
(p. 84.)

So for Wiener, biological and non-biological systems can work on cybernetic principles as these systems are like machines and are subject to feedback. An action in a system

causes a change in its environment. Change feeds back into the system. This has the potential to enable a change of behaviour. If feedback reinserts its past performance, that is, regulates itself, the system is in homeostasis. If however the system changes its method and pattern of performance, its behaviour is a process of learning and knowledge creation. For action and feedback to be effective, communication is important. Control mechanisms also exist in feedback loops. They are bound to communication. In this capacity feedback can be used as a method to control a system, yet also release its potential.

I contend that the Manganian universe, and in particular the continuum in the Manganian universe, can be productively related to Wiener's cybernetic principles. There are events in historic narrative that can be understood to maintain and regain homeostasis, and to produce learning and knowledge creation. The next section attempts to unfold this position.

The feedback loop and continuum

A system is a set of connected things or parts that form a complex whole. The Manganian cosmological universe is a complex system. It is an organised body that interconnects material and immaterial things. It is a universe made up of many realms (lands) that co-exist in shared time. It is a universe where the substrates are demarcated in relation to the atua and are determined along genealogical lines. These realms are occupied by sentient beings, energy, matter, animal and human. These beings are multidimensional (doubling/coupling) in form and flux (transition) and flow between the forms. These realms are connected in continuum to each other and have the ability to exchange energies.

This interconnected universe is a system that is subject to change by self-initiated causes and conflicts, as well as a response to action by other systems. It is able to respond to these changes and has the ability to hold equilibrium, to change behaviour allowing learning and knowledge creation. The Manganian cosmology demonstrates the ability of a system to initiate self-analysis, to reproduce itself and change accordingly.

The narrative that recounts the creation of our atua from Vari-Mā-te-Takere also describes the alteration of realms to suit the value of mana. This repositioning of the spatial order of the atua established the origin of primogeniture. Vari plucked her off-spring from both sides of her body and distributed each to various lands. The reordered position of these lands by Vari ensured Vātea, the first of the offspring would lie above his siblings, a position of mana, thereby acknowledging the important status of the first-born. Within this narrative, cybernetic conditions can be connected. Vari, analysing the spatial order, responded to this by feeding back action into the system, through changing the spatial order of her offspring, our atua. This action, change, ensured primogeniture and added a new value into the system. In doing so she altered behaviour within this system to produce a desired re-order. The reproduction of this value through the retelling of the story through descending generations ensures equilibrium. The narrative will change a little in each retelling, allowing responsiveness to contemporary conditions.

The notion of reordering occurs in my interactive installation work. This is through the feedback exchange that occurs between the presence of the viewer in the physical space and the alterations made to the digital image, by their proximity (see Chapter Six, p.130). This is a responsive, cybernetic, system.

Cybernetic relationship, tangata and tuārangi

The belief that a spiritual realm exists that encounters the everyday in the Mangaian understanding of the world, engenders control of one's actions and behaviour in daily routine. The encounter between tangata (people) and tuārangi (animals represent atua) can be read as a cybernetic system. Rangi's (Mangaia's first human settler) encounter with the anau tuarangi of Tumuteanaoa may illustrate this.

Rangi pushes A'ua'u away from 'Akatautika into a space that becomes the human realm. This is a change in environment, a cybernetic condition of sorts. Rangi then explores this land. His journey is a discovery of place, flora and animals. He names the landscape and thereby demarcates ownership over it. However on his journey he meets anau tuarangi who claims that the landscape had been named and belongs to another atua, Tumuteanaoa⁴⁷. They insulted Rangi through acts that diminished his mana. After complete outrage and consultation with his grandmother, Rangi became aware that Tumuteanaoa who preceded him was to be respected; therefore

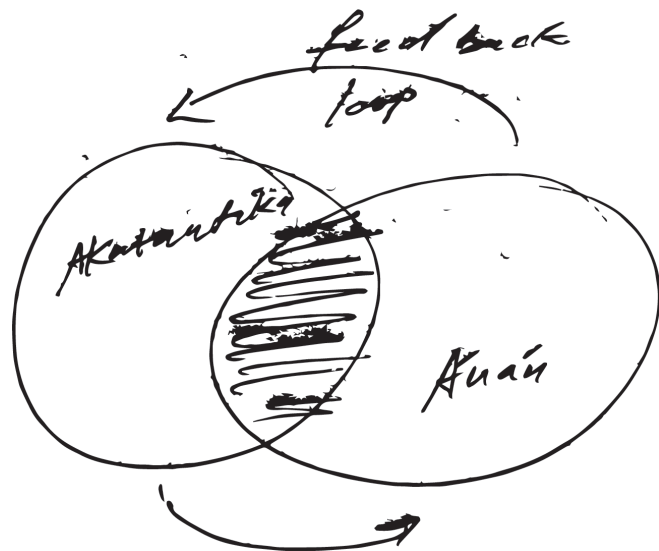


Figure 17. Illustration of a feedback loop between A'ua'u and Akatautika (Tapuni, 2016).

⁴⁷ Who is Rangi's grand-aunty.

he had to negotiate a relationship that honoured her without diminishing his own sense of mana. This is said to be the initial story that sets in play the unease between tuārangi (those who act on behalf of Tumuteanaoa) and tangata. It sets a framework where tangata have to be aware of the actions of tuārangi and respond accordingly to minimise effects on what is tapu and their mana. This is feedback. The action of negotiation here is learning.

Within interactive art work the computer system and the viewer/participant can be said to be learning through the feedback exchange that occurs between them. Both respond to each other, listening, watching and relaying. In doing so they cause change and moments of homeostasis. This feedback and learning is also engaged in modes of my making. When I enter into my creative making space I respond to the medium at hand. These may be raw or manufactured materials (plaster, paint, canvas, paper, analog film) or digital assets (digital video files, animation, still digital photo's). Through this process another layer is exposed. This is the continuum in which feedback occurs, between myself as other in ancestor, and making implicit knowledge, explicit.

Next I will describe in more detail how feedback mechanisms might be part of Rangi's story. Rangi's journey of enquiry, discovery and place naming allows knowledge acquisition (learning) to occur. The knowledge acquired by Rangi is passed down through the retelling of this narrative. It imparts knowledge about societal frameworks and value systems, through the ideas of mana, tapu and respect as well as caution. The continuation of these narratives, cycling through the generations, are forms of control that maintain equilibrium in the Mangaian system. This can be seen through the cautious approach tangata have in regard to tuārangi. This cautiousness is centered around the protection of one's

being against harm. The notion of tapu ensures this. In this way the circulation of feedback of these values through generations, is a form of control, in the effort to protect and maintain equilibrium.

However with every interpretation of knowledge, as it continuously evolves, information is relevant. That is, modes of knowing (ontological systems) are contingent on environmental factors predicated on a specified time, space and context. Again, this is an insight that has parallels in cybernetics. This is seen through the transformation from a Manganian ancient cultural framework to Christianity. The Manganian system's framework changed when inherent cultural values about the spiritual and physical world met the need for mana acquisition through powerful relationships with Christian ministers, as discussed in Chapter Two. In a sense mana was perpetuated through the continuity of cultural change, even under a colonial system. So too, within the scope of this research project, the notion of the Manganian continuum is taken into a contemporary context that maps technology (digital) in physical space.

Second-Order Cybernetics, circularity and the Manganian continuum

The concept of circularity, drawn from the second phase of development of cybernetics is also of value to positioning my project. For Heinz Von Foerster (2003), first order cybernetics involves observed systems while the 'second order' of cybernetics, (which he calls the cybernetics of cybernetics) involves observing systems. He suggests that the cyberneticist thinks in the 'circularity of observing and communicating' (ibid., p. 289).

Von Foerster (2003) proposes that circularity 'violate(s) the basic principle of scientific discourse which demands the separation of the observer from the observed. It is the principle of objectivity. The properties of the observer shall not enter the description of his observations' (ibid., p. 288).

He argued that the traditional operation of causation and deduction within scientific discourse activates a 'cognitive blind spot' for social problems (Von Foerster, 2003, p. 284). Thus, he suggested, if something cannot be explained, given a cause, or a reason, it cannot be seen or established and it does not therefore exist. The absence of an observer from such operations evades responsibility and autonomy of action.

Von Foerster (2003) proposed a theory of the observer, through second order cybernetics, 'in order that the observer who enters the system shall be allowed to stipulate his own purpose: he is autonomous' (ibid., p. 285). Thus, the observer becomes responsible for his/her actions. Within this frame, circularity is the exchange between observing and communicating. Circularity disrupts objectivity by allowing the observer to specify their own purpose; thereby taking responsibility for their action (ibid.).

In turn, in this research project, 'I', the artist researcher, exists as the observer and observed (participant), for whom also is part of the system through genealogy (gene archaeology)⁴⁸. In this way my, as an artist, as an observer and the observed (or participant), I may stipulate my purpose, and am responsible for my ideas. My approach to our knowledge may differ from the way in which we engage with this knowledge in our Manganian community.

⁴⁸ This point poses a subsequent question, how or can an observer (participant) be part of the Manganian cybernetic continuum if they do not connect to Mangania through genealogy?

In my practice I uncover knowledge through inherent, implicit and explicit modes of knowing (see Chapter 1, p.34) in non-digital and creative-technological exercises. This openness allows for possibilities, speculation and porosity in the effort to form new meaning. In the next section I discuss how circularity folds into the Manganian continuum.

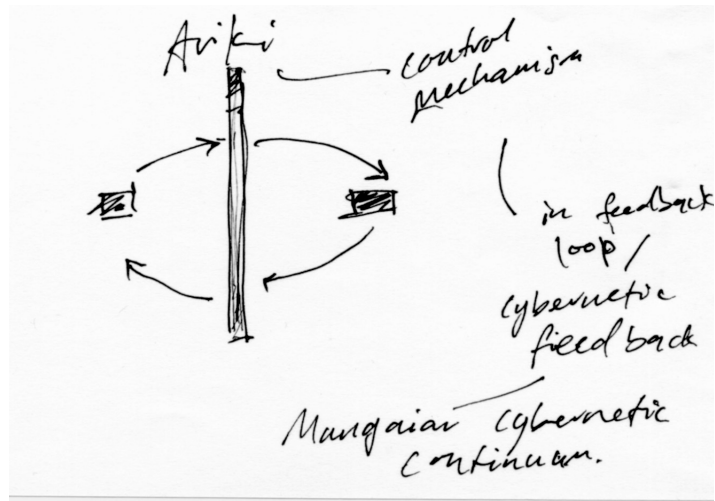


Figure 18. Illustration of Aiki as the control mechanism (Tapuni, 2016).

Control, mana and the cybernetic exchange

In Chapter Three I discussed how Gill's aperture, the gap that allows communication between atua in the interior of 'Avaiki and its descendants, the people of Mangaia in the exterior world, could be read to enable effective action and feedback. This is a premise for control. In the previous chapter I discussed this aperture as having a two-fold purpose that is not necessarily mutually exclusive; the act of communication and a form of structure or site for communication. Structure, form and ritual continually fold and unfold within themselves. Implicit in these relationships is the circularity of exchange.

Wiener connects control with communication. Information flows between the actors and the environment; I align the role of ariki within the Manganian universe as the conduit for the "information flow". That is to say, the ariki as medium, communicator, within the system acts the exchange of information between the human and spirit world. In a sense ariki connects the information flow between the actors and the environment.

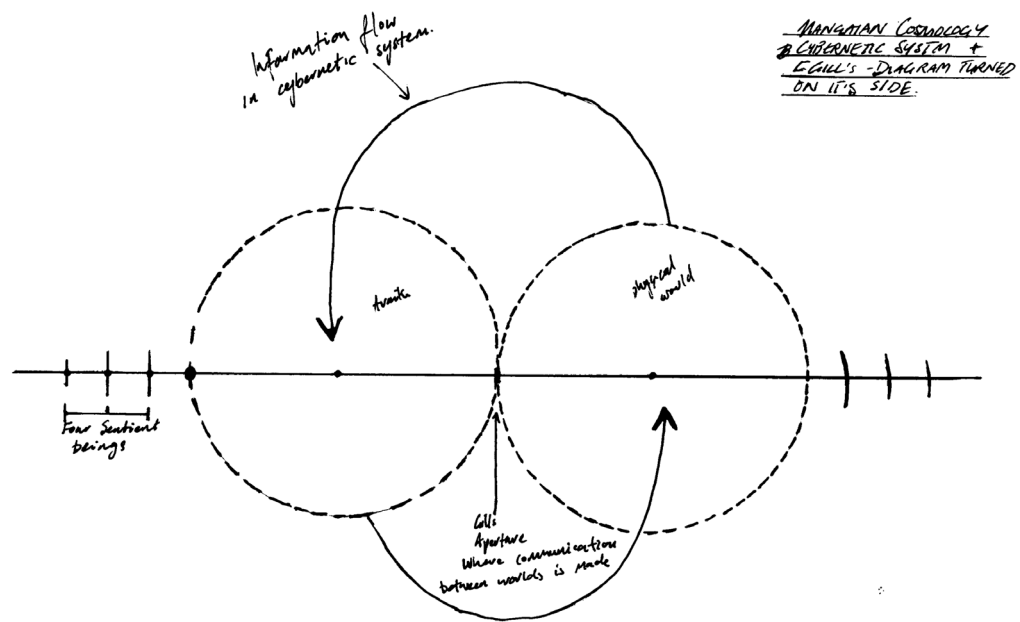


Figure 19. Information flow in the Manganian continuum (Tapuni, 2015).

The relationship between humans and their environment within the Manganian world is closely linked to the conflict between human beings and the supernatural, between the sacred and temporal (Reilly, 2009). This conflict is centred on the acquisition of land, resources and mana. Atua and their human representation, the ariki, are sources of mana. The role of the ariki, as referred to in Chapter Three, was to be the spirit mediums between humans and the atua (Reilly, 2007). Ariki use karakia (sacred prayers, chants) to open the continuum between the human community and spirit.

Reilly (2007b) states that within this world 'politics and religion are one and the same, constituting 'an economy of mana' where the aim is to appropriate, control and transform the sources of mana' (ibid., p.22). The stronger one could demonstrate their genealogical link to the atua, the greater their mana, their right to ariki status and therefore control of land and natural resources. The key point here is that the purpose for a person to accumulate mana was to enable them to appropriate (to take), to control and to transform the various sources of mana. In doing so one would then control resources, that of land and people. It is important to note here that this did not happen in a vacuum but in negotiation and exchange within the human community, their relation to atua and the environment.

So the ariki are the conduits that initiate and sustain the dialogue, the communication between the human and spirit world. This is the circularity of feedback within the Mangaian continuum as a cybernetic system. Through the position of being the enabler, the ariki had the ability to respond, to give feedback, to control, to learn and to change the system. However in this equation of the Mangaian universe as a cybernetic system, the control, the mana is embodied in the ariki. It is not disseminated in an equivalent amount to human parts of the system, nor to atua that maybe considered insignificant. It is a hierarchical structure. Within this structure information is hidden or guarded.

So how then would the Mangaian continuum, connection to atua, manu, enua and tangata function as a cybernetic system when the connection to the other world is mediated by ariki in this context?

The next section draws on literary theorist N. Katherine Hayles' understanding of a cybernetic system as a mechanism for meaning formation within culture to open ideas on how

this premise may function. However, preceding this discussion I will trace the etymology of 'information' to demonstrate how the term has shifted over time, allowing new cultural meanings. Information is in a process of redefinition in relation to computer data in the post-industrial world. I will show how the term 'information' is understood in a Mangaian context as it is essential for cybernetic exchange to occur. Therefore to understand the implications of how the Mangaian continuum might function as a cybernetic system we need to understand what the context may look like where the communication of information is mediated and treated as porous.

Defining Information

The following two English dictionary definitions have each aided my understanding of how information might function in digital media (and digital media art) when compared to a Mangaian understanding. *Blackie's Concise English dictionary*, (n.d), defines inform as 'in-form' [French *informer*, to apprise, Latin, *informo*, shape, describe - *in*, intens. and *forma* form.] The lively definitions of the verb include: to give form or shape to, to inspire and to give life to, to actuate with vitality; to animate; to communicate knowledge to; to instruct; to tell, acquaint, appraise. Yet also, in a time of the World War, *Blackie's dictionary* (n.d.) defined 'to inform' as the act of informing; news or intelligence communicated by word or writing; intelligence; knowledge derived from reading or instruction, or gathered in any way...' (ibid., p.358).

After the development of computers, *Collins English dictionary* (1981) defines information as 'knowledge acquired through experience or study [...] the act of informing or the condition of being informed' (ibid., p.751). Also, with regard to

computer technology, 'information' is defined as another word for data, and the result from the processing of data through programmed instruction. Data in the same dictionary is defined as 'a series of observations, measurements or facts; information. It is given a Latin origin, 'literally: (things) given, from *dare* to give' (Collins, 1981, p.379).

In Manganian language, derived from Mauriaiti et al. (2006), information is defined as 'muna-korero' (ibid., p.620). Muna⁴⁹ is defined as secret, confidential and korero is oral traditions or 'speak, say, that which is said, news'. Combined muna-korero means 'secret or hidden talk, knowledge, information history or tradition' (ibid., p.250). By way of this definition I understand that information contains knowledge that is hidden, guarded or partitioned.

Information, according to the English definition (referred to outside of the military context), is often considered to be that from which knowledge, data and fact can be derived, the result of cause and effect in a system, the content of a message, to inform; to give shape or take form. It is the content that affords information to be useful.

If in a Manganian interpretation information contains knowledge that can be hidden, guarded or partitioned then it is boundary constituting, generating the homeostasis of a system. The nature of hidden information would suggest a Manganian cybernetic system can occur through selective premise. This aligns with the Ariki being the conduit between the human and spiritual realm. Knowledge (information) is held in certain hands.

⁴⁹The term 'muna-korero', specifically muna was not used in daily conversation at home. Often the terms puka or tara which Mauriaiti et al. (2006) give to gossip. The term puka was often used and means to chat, talk and have conversation. It also refers to book, a tree, a burning sensation inside ones body and a description of something going mouldy in heat (ibid.). Tara means to 'talk, say, speak, converse, tell' (ibid., p.448). It encompasses word, text, talk, a message, doctrine, news, story and anything that is spoken. With 'aki afixed to it tara'aki; means notice or piece of information. 'aki is defined as pick or pluck, it is also used for disclose, tell, confess and 'aki 'aki means to give lots of information(ibid.).

These ideas prompt questions: *How does a cybernetic system occur within the framework of partial knowledge that is hidden? Does this process allow (afford) information to become in itself porous? In a sense full of holes? Allowing a bit part cybernetic system to form, or cybernetic failure? Or is this knowledge hidden in the unknown? Can information, in its unknown regard, become known through the body? Does this make the bodies matter porous? Does this transgression then allow information the ability to become energy and matter, and how does it manifest as - in art?*

To discuss how knowledge that is hidden may exist in a cybernetic system (where transfer of information is key), I further breakdown the meaning of information. The term information is comprised of fact, observations and measure. I shall tease these out in an effort to further understand that which underpins information, and correlate those notions with a Manganian understanding.

Tika, Kakaro, akatau, 'aite (data, fact = observation & measurement)

There is no specific reference for data in the Manganian dictionary however fact is defined as tika, a fact tika'anga tikai. Mauriaiti et al. (2006) define it as agree, all right, allowable, authorised, authority, consent, correct, permissible, permission, right, ... truth, fact and accurate (ibid., p.493) fair, just, equitable, straight, honest.

The Oxford Dictionary (1951) defines fact as the 'thing certainly known to have occurred or be true, datum of experience, [...] thing assumed as basis for inference; the true or existent reality, independent of inference, [...] engaged in finding out' (ibid., p.424). Fact is truth, the right way, that which is straight and honest, based on

observation or experience. However cybernetic understandings and physics itself challenged the notion that there could be universal facts that emerge from observation. The observer always has an effect on the system.

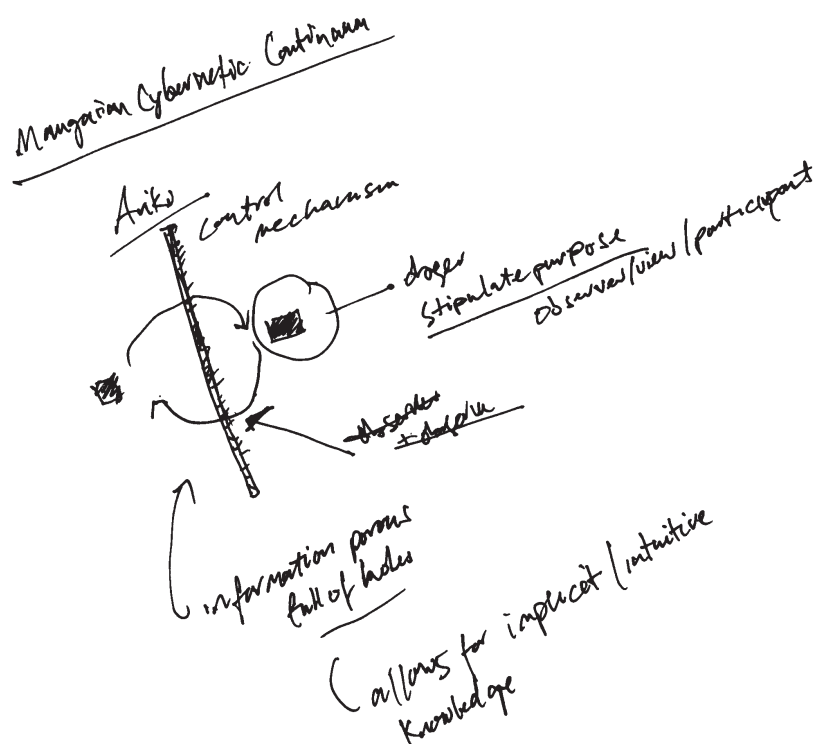


Figure 20. Illustration of the Mangaian Cybernetic Continuum and the porosity of information (Tapuni, 2016).

Observation in the Mangaian language encompasses several different words that are used depending on the circumstance: 'ākono (heed, observe, follow, honour) 'akataū (to see, behold, compare, determine), kākaro (observe), kite⁵⁰ (see, observe, sight, vision, witness. Find, discover, discovery. Ability, know, understand, feel, knowledgeable, skillful, clever, knowledge, skill). Kākaro'anga, kākaro is observe, to look at. Measurement has many definitions, again dependent on its use. Here I use 'āite ('ārite) 'equal, identical, alike, comparable ... measure' (Mauriati et al., 2006, p.10).

Information therefore is the act of informing and shaping; it contains fact which has a degree of tika, truth, honesty.

⁵⁰ The words kite, kikete and kitekore, meaning knowledge, knowing, no knowledge, stupid or foolish, were used at home. The word aite'anga ('meaning, equivalent sense' (Mauriati et al., 2006, p 10), tumu (the cause or reason, also defined as source, place of origin and head), manako (thought and thinking), marama (light, clarity of vision, enlightened, understand) and pōiri (dark, darkness, in dark, without light, obscure, indistinct, not clear, ignorant and unenlightened) were used in discussion around knowledge. The last two terms are also aligned to inferiority (savage) and Christian enlightenment as discussed in the first chapter.

It is defined through measurement and observation which holds looking, witnessing, knowledge, understanding and comparable determination, which is partially hidden and guarded in a Manganian context. The next section discusses how information may flow in this system. The flow of information is important for the function of circularity (feedback) in a cybernetic system and also the argument within this thesis for a Manganian cybernetic continuum.

Information flow, boundary constitution and transgression

American literary critic N. Katherine Hayles has extensively researched the broader impact of cybernetic thinking on cultural activity. In the essay *Designs on the body: Norbert Wiener, Cybernetics, and the play on metaphor* (1990) Hayles proposes that cybernetics be understood as an enquiry into 'metaphorics that seeks to understand the boundaries of self (that) produce and are produced by theories, disciplines and bodies' (ibid., p.226). That is, cybernetics allows for the transgression of boundaries by focusing on the flow of information between and around systems rather than on states of matter and energy. Hayles takes cybernetics beyond its standard use as a theoretical and technological extension of information theory, arguing that meaning also flows through the exchange of social and cultural values. Although Hayles uses literary examples, I will spend some time unfolding some of her cybernetic positions that I find useful as an art practitioner.

In relation to early cyberneticist Norbert Wiener, Hayles (1990) argues that he would form meaning through metaphorically identifying an emotional conflict with an unsolved scientific problem. Hayles considers that this was conducted through feedback between an emotional conflict Wiener was suffering from and an unsolved scientific problem

he was working on. This, Hayles suggests, was a process of seeking equilibrium through resolving technical (usually regarded as non-human problems) and emotional (human) problems within a cybernetic system.

Drawing on Wiener's use of the metaphor to construct meaning, Hayles goes on to contend that metaphors set up interplay between category constitution and transgression. Hayles states that all language is metaphorical and based on similarities and differences, to argue that the literal operates like metaphor through 'partial resemblances... degrees of difference, not fixed boundaries, between the literal and the metaphorical' (Hayles, 1990, p. 212). That is, Hayles argues, that metaphor implicitly involves the notion of transgression and constitution. This is of interest to the research project in that to constitute a transgression between the boundaries of the Mangalian continuum and cybernetics, I draw on the value of metaphor to allow these 'separate' ontologies to interplay.

Furthermore, within this context Hayles (1990) considers the cybernetic system as a flow of information that constitutes and transgresses boundaries where meaning flows through the exchange of social and cultural values that suffuse systems. She determines that meaning is formed through the continual and gradual process (tension) between category constitution (boundaries⁵¹) and transgression of these boundaries. Consequently Hayles suggests the feedback between the two is a search to regain homeostasis, equilibrium within a system. She writes, 'the idea of the feedback loop implies that the boundaries of the autonomous subject are up for grabs, since feedback loops can flow not only within the subject but also between the subject and the environment' (Hayles, 1999, p. 2). In a way the feedback loop enables the relational status of the human to the environment and the broader system.

⁵¹ That is constructing a category is to constitute a boundary.

I propose that in a Manganian universe the information flows between and around systems, transgressing boundaries such as the relation of the spirit realm to the human realm (through incantation, chant and behaviour control) in the form of tuāurangi and tūpāpaku⁵² (seen as omens or signs of danger and one responds accordingly). Albeit this information is mediated through a medium and some set (homeostasis) values, that is a form of boundary constitution. This resonates with the way in which a cybernetic system may function according to Hayles; however the issue of how one mediates information flow in a structure of hidden and guarded knowledge is still present.

Hayles emphasizes transgression and constitution of boundaries of information rather than the conditions of matter and energy. I suggest the flux (flow) of constitution and transgression of boundaries of information and the conditions of matter and energy are similar. I propose that in a Manganian cybernetic system, information may permeate and become states of matter and energy, the transgression of (as) energy (and form) to constitute new forms. This transformation, and opening, of their condition may allow for the porosity of information and the role of the observer, artist. The next section goes on to speculate on the possibility of a new form, a Manganian cybernetic.

Speculating on a Manganian cybernetic - continuum

In light of the above I propose the Manganian continuum, the connection between atua, manu, enua and tangata, is cybernetic and can be extended to form a Manganian cybernetic continuum. I propose that this system allows for information to be transgressive and boundary constituting (that is forms and shapes) and allows for new meaning to emerge.

⁵² The human form, both body and spirit, after death.

The Manganian continuum is negotiated through the ariki, the communicator between worlds. The ariki, in a sense, is a control mechanism. This control is based on knowledge, which is accessed through the privilege of hereditary right. This is predicated on societal values, conduct and mana. It is an effort this role seeks to maintain, homeostasis.

This can be challenged through the ability to battle for one's place in the system (see Chapter Two). This action allows category transgression, a continual making, constant transformation and becoming. This sense of coming into being is a component of a cybernetic system.

Knowledge and information, by definition, is porous, malleable and hidden. Within the Manganian continuum this maintains homeostasis through control and guarding of knowledge. However in the Manganian cybernetic continuum, rather than frame this porosity as a bit part or failed cybernetic, I embrace the holes and hidden knowledge, that which is unknown, as the potential for information's malleability.

This is done by affording the observer the responsibility to stipulate their purpose, through acknowledging the observer as an observer and participant in the system. Observation, as in *akatau* (*to see, determine*) and *kite* (*observe*) is key and embodies inherent and intuitive ways of knowing. This is one form that knowledge and information transgresses beyond the role of the hereditary Ariki. This transgression of boundaries then exposes information as energy and matter, material and immaterial. Here the role of the communicator, conduit is open beyond the boundaries of hierarchy and hereditary privilege. This opens the Manganian cybernetic continuum, interrupts homeostasis, bringing forth continuity through change.

The next chapter discusses how the Mangaian cybernetic continuum may extend into art practice. I draw on local and international artists to discuss how the Mangaian cybernetic continuum may function in practice, in artwork and through speculating the role of the artist/researcher/participant as observer and participant.

Mangaian cybernetic continuum and Artists' practices

This chapter discusses artistic practices that are pertinent to the proposition for a Mangaian cybernetic continuum; in particular these artworks create the conditions for feedback, circularity and open-ended relations between the observer and participant. I begin by discussing key concepts in artists' practices, then speculate how they may link to the Mangaian cybernetic paradigm. I do so in an attempt to open a discussion on how the Mangaian cybernetic continuum may be present in the interface between digital and physical space. I have not limited the discussion of artists' practices to those working with interactive technology. I propose that drawing on non-digital art practices will open and enrich the discussion of how cybernetic exchange might occur through art.

Art historian Caroline Vercoe (2002) contends that the notion of continuum in contemporary art allows for the fusing of binaries; '...forming a mutually dependent dynamic. The concept of continuum eschews polarising categories by presenting more fluid and protean points of departure' (ibid., p.192). In this light I have arranged the discussion and subsequent layout of the chapter in relation to reading the artist's works through the lens of the Mangaian cybernetic continuum.

I have purposely done so to avoid polarising boundaries that are demarcated by way of ethnic categorisation⁵³.

The early history of the relationship between art and cybernetics is beyond the scope of this thesis, although I acknowledge the fore-runners in this field such as Nam June Paik and Edward Ihnatowicz, for the purpose of this project I will focus on contemporary art practices.

To briefly recapitulate on the central thematic, the Manganian cybernetic continuum is an embodied sense of being in connection to all things (atua, animal environment, tangata (human), matter and energy). Within this relationship a system of exchange occurs. This relational experience offers multiplicity. Information within this system can be rendered porous by the nature that information, within this system, holds a quality that is invisible. This allows information to be malleable.

In this chapter I will also attend to the notion of continuum as it resides in other artists' processes, often by enabling the self-determination of the art work and the process of making. This sometimes recalls ancestral knowledge and social and technological systems by explicit and implicit means. When the artist acknowledges the observer/audience as part of the system of an artwork, the observer is afforded responsibility for their actions. This potentially decentralizes power relations, or institutional hierarchies within a gallery milieu, and disrupts the homeostasis of a system. There is a collapse of time and space that further allows the transgression between the artist and observer roles.

This chapter brings into focus the system of exchange in the Manganian cybernetic continuum by primarily exploring

⁵³ For instance I have avoided using the label 'Pacific or Pasifika art' as they come with predetermined assumptions versus the universal label of 'contemporary art' as art from everywhere else.

the notion of feedback and how these may be read in varying ways in practice. I explore the feedback loop through the interaction of the viewer as the agent who activates the work. I do so, firstly by critically examining the interface in Yasuaki Kakehi and Takeshi Naemura's work *Through the looking glass* (2004) which I have experienced as an observer/participant. This work triggered my interest in interactive media art. It also reflects the importance of actual experience of interactive media art. One can reflect as an observer and participant which adds to the understanding of the work.

I then draw on American interactive media artist Scott Snibbe's work *Deep walls* (2002) in terms of interdependency and technology as a mediator between the digital and physical realm, as a connector to the cybernetic continuum. That is, the notion of interdependency is a feedback strategy between the viewer, software and artwork. Snibbe's practice also has a relation to my practice in terms of the formal aesthetic of lightness and darkness and the exploration of temporality.

The role of mediator in the exchange (and continuation) of knowledge can be extended to the artist. The communal sharing practices through art-making exchange in New Zealand Cook Island artist Ani O'Neill's *Buddy System* (2001) allows for this to occur. Here O'Neill's interconnection is a feedback between her and the viewer participant, as individual and collective making process. Feedback occurs through the process of making.

Feedback and continuation of ancestral knowledge, through the use of iconography, is discussed in regards to the practice of Fatu Feu'u. I then turn to Mariko Mori and the means by which she connects technology and ancestral knowledge. I draw conceptual parallels with the approach

of artist Mariko Mori, who connects ancient thinking and computer technology in the work *Tom Na H-iu* (2006). I suggest the circularity in these works aligns them to the cybernetic continuum.

From this discussion of feedback in open practice I discuss how feedback is present in the process of art production, through a critique of Lily Aitu Laita and Sopolemalama Filipe Tohi. I discuss how information (or ancestral knowledge) is encoded through art processes and binds the ancestor through material practice. This binding is aligned with cybernetic feedback. The intention in this particular selection is to provide a context for the development of my own art project that is lensed through the Manganian cybernetic continuum.

Interacting self as other, Yasuaki Kakehi and Takeshi Naemura

In 2007 I travelled to Tokyo and visited the ICC Gallery. This cultural gallery exhibits "media art" that utilizes new media technologies combining art, science and technology. Here I encountered a number of interactive works. The work entitled *Through the looking glass* (2004), by interactive media designers and researchers Yasuaki Kakehi and Takeshi Naemura of Japan, had strong appeal in terms of the design of the interface and its playful approach to the notion of self as other. Conceptually it was an intriguing work but its significance came through the uncanny experience elicited through interaction.

This project allowed the user to play air hockey against a mirror image of their self. A projection screen is placed in front of a mirror (looking glass). The screen image reflected in the mirror and the image viewed on the screen are not symmetrical. This asymmetric occurrence has been utilized to enable the viewers to interact with their own

reflection. A video puck travels back and forth through the looking glass and the players hit the puck to compete with their own reflection (Takehi & Naemura, 2005).

I found myself facing the uncomfortable situation of playing a game against myself. It was an experience I had encountered

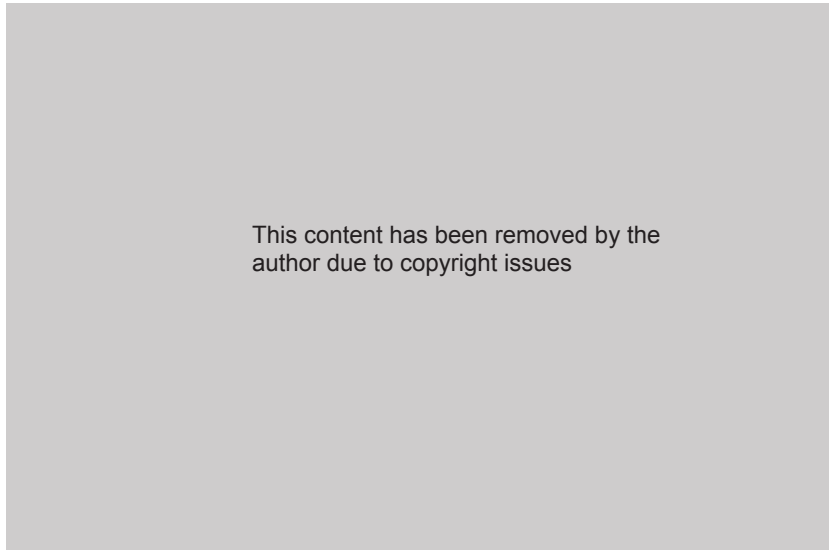


Figure 21. Through the looking glass, detail (Takehi & Naemura, 2004).

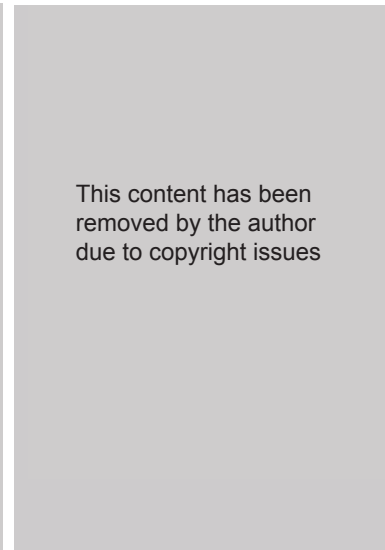



Figure 22. Through the looking glass, Interactive interface between self and other self (Takehi & Naemura, 2004).

before on many occasions. I had played 8 ball pool against myself, tried checkers and monopoly. This experience however was different in that I faced a visual “facing” of myself. Not the mirror image of myself that I am aware of in the everyday ritual of the bathroom but an uncanny asymmetric occurrence of myself, the me of me. In this experience the participant becomes less focused on playing to win the game of air hockey but rather focused on how to control the selves, how to negotiate multiple bodies; or rather how to negotiate the real body and the phantom body. At times I was very much more in the mirror than in the physical world, in a sense perhaps more in between the two spaces. This work overturns common sense and elicits the uncanny. This sense of play on self and self as other is of interest to practice in this project on a conceptual, practical and experiential level.

Though an uncanny and disconnected experience the feedback loop (connection) occurs through viewer interaction. That is, the loop connection occurs between the viewer, software and artwork. It also transpires through the exchange of the puck from one self to the other (see tēta'i Chapter 1, p. 29). The cybernetic continuum occurs here in the exchange of self and phantom self, the self in many. In a way it is multiplicity, and the doubling and coupling of form.

Many of Kakehi's research projects reconfigure familiar everyday actions and are focused on altering and triggering behaviour surrounding the interactive experiences. For example *Rainterior* (2010), collaboration with Erika Okude, is an interactive display that illuminates raindrops on a water surface by using a projector-camera system. The position of the fallen raindrops determines and triggers images and sounds in real time. *Murmur sky* (2007), conducted through Plaplux, an interactive company Kakehi directs, is a projected digital cloud work in which viewers stand beneath the projection looking up. Communication cones descend down from the projection. Communication through the cones changes the direction of the clouds.

The feedback loop that occurs here exists between the physical and digital world. That is the relationship that emerges between the observer/participant's voice and the subsequent changes in the direction of the clouds, is a feedback loop. In this way feedback is considered to mediate bodies, that of the work, and the viewer/participant. This continuity between technology, sociality and weather phenomena extended the work beyond the simple 'tricks' of many interactive installations.



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Figure 23. *DeepWalls* (Snibbe, 2002).

Interdependence, Scott Snibbe

American digital artist Scott Snibbe's interactive installations draw on his capacity as a software engineer to thematically play with notions of interdependence, perception and social interaction. Through this he explores 'mediated bodies and the process of mediation itself' (Paul, 2005, para. 8). The process of recording, translation and amplification are important in Snibbe's work as this offers the ability to mediate the body. Technology is essential in this process for Snibbe and his custom-made software is the artistic medium. The medium 'reveals its mechanisms as well as the social and aesthetic agenda' (ibid. para 8). In Snibbe's *Deep Walls* (2002), a work which I will discuss in detail shortly, the medium (software) reveals itself by offering individual and personal markers (data), through the capture of shadow play, a collective identity. This is done through the temporary collection of recorded events in the interface of the artwork.

I suggest Snibbe's use of technology, can be read through the terms of the Mangaiian cybernetic continuum, where technology is a mediator between the digital and physical realm. For example the interdependent relationship between

hardware and software act as mediator. The eye of the camera records and gathers data, the CPU processes and translates, and finally the display unit amplifies the information; all of which is activated through software, through a series of instructions that encode the information. They have a relationship based on circularity of information going towards a state of equilibrium. Parts of their relationship appears automated, perhaps as long as they are in a state of equilibrium.

A key component to Snibbe's work is viewer activation. Bullivant (2007) suggests that this is central to the notion of human interdependence or mutual dependency. This reflects Snibbe's Buddhist belief that 'no object, physical or mental, has an inherent existence in isolation from the rest of reality' (ibid., p.69). This resonates with the notion of the Manganian continuum proposed in this thesis where atua, animal, human and environment are connected.

Social psychology, complexity and network theory are also influences in Snibbe's work. Bullivant (2007) suggests that the body (a person) for Snibbe is interdependent: it is composed of one's parents' DNA, is in need of food and other individual and societal interaction. These values, associated with the body in Snibbe's work, can also be connected with the Manganian cybernetic continuum as the genealogical transfer from one generation to the next, as in Refiti's gene archaeology and Mikaere's whakapapa (Chapter One, pp.22-34).

Snibbe's *Screen series* (2002-2003), to which *Deep Walls* (2002) belongs, activates the cinematic screen through the transformation of its function from a surface for image projection to a reactive surface. The series stems from various historic narrative uses in shadow play in China, silhouette portraits in Victorian culture, the silhouette chair that captured human shadows on the wall and the

nineteenth century device, the magic lantern. The Screen series explores the relationship between body, shadow and light in(on) a reactive surface to experience image in new way. Snibbe's works are 'subtle interventions and manipulation of light' (Paul, 2005, para. 3), that draw on time, space and light to 'reconfigure conventions of perception' (ibid., para. 2).

Deep Walls is a projected cabinet of cinematic memories that collects viewer's shadows over time. It places them in a grid that is made up of small screens that form a 'shared presence in space' (Paul, 2005, para. 4). The work consists of a large white screen that is divided into a grid of sixteen equal sized rectangles. When viewers enter in front of the projected light they obscure part of the screen. A camera captures the shadow and any movement they make while in the sensate space. Once viewers have left the space their captured recording is replayed in a single box on the grid. In this way the participant's body constitutes the shadow image. It loops continuously next to other captured shadow images and will do so until it is replaced by a collection of subsequent captured shadows. Shadow is inherently interactive through the mode of play; therefore there is immediacy through play in the work. The collected shadows extend into the viewers space as there is no outer edge that provides division between shadow space and viewer space.

American Curator Molly Polk describes the work as a 'cinematic performance engendered by our shadow' (Polk, 2005, para. 5) and contends that in this context the shadow is not reliant on the body alone but on a feedback loop between with screen, camera, projector and computer. She suggests that the shadow in Snibbe's work makes one 'aware of our body's real presence and trajectory through space' (Polk, 2005, para. 5) yet the realness of shadows is called into question with Snibbe's work. Polk contends that through the 'enlivening'

of the shadow image, shadow 'becomes an active agent with apparent substance and form' (ibid.); thus, through this the boundary between "real" and "unreal" is porous and in flux. In turn the experience with Snibbe's work asks us to examine our body in relation to the environment.

Shadow as imprint and trace in Snibbe's work *Deep Walls* is a complex play of self and other. Where the casting of a shadow is intrinsically linked to the body, a reality of sorts, the recasting of the shadow in *Deep Walls* produces the shadow image, a moment where the body becomes, in a sense, a separate entity from its shadow. In one light, both the body and the shadow become in and of themselves. The body is matter, the shadow suggests the immaterial. However the shadow and the shadow image is the trace of the body's material existence. It signifies the "other" of material.

Yet the shadow image holds a paradox: it is a trace of the past and a repetition of an earlier time even while it is a current occurrence that manifests in space. The ability to "capture" the shadow produces the shadow image. The shadow image is dependent on technology, its 're-presentation is still inextricably bound to the process of recording, projecting and doubling; every aspect of the representational process becomes a reconfigurable, seemingly active entity' (Paul, 2005, para. 3). Each shadow image has a precise and different duration that gives it the function of a cinematic loop. This difference, change, is constructed and determined by software instruction.

The body and its shadow are made cybernetic through the process of recording, projecting and play. The metamorphosis that is offered between the body and shadow, that is the distinction between the matter body with its undulating textures, tones, mass and the flat material-less absence of shadow, offer the ability to act and react, compelled through

play, an instance of cybernetic looping. The playfulness of the viewer propels interaction. The cybernetic loop in Snibbe's work, has a strong relation to my concept of the loop in the Manganian continuum where the other is same. This work externalizes other as same and in a moment before there is a return to nothingness, an impermanence. Yet it offers a continuous connectedness in relation to its ancestor, that which came before.

Sharing practice through a continuity of knowledge, Ani O'Neill

Like the function of software and hardware the artist can be considered to mediate the feedback. That is the artist may simulate the control mechanism in the cybernetic continuum.

New Zealand born Cook Island artist Ani O'Neill has a 'strong sense of responsibility [...] (for) sharing cultural knowledge' (Luz, 2014, para. 1). The role in facilitating the continuity of this knowledge affords O'Neill's practice the ability to re-work knowledge and craft traditions of the Cook Islands in the context of New Zealand and the international contemporary art market. In this way O'Neill can be afforded the role of medium that continues ancestral knowledge and also the control mechanism that stipulates purpose in a cybernetic continuum.

Art historian Karen Stevenson (2008) states that 'O'Neill offers a new context to traditional art: a context where the pliable and repetitive arts traditionally associated with women can be reinterpreted for an urban audience' (ibid., p. 90). O'Neill transforms Tivaevae⁵⁴ and crochet craft into site-specific installations and participatory works that draw on contemporary aesthetics.

⁵⁴ Cook Island patchwork quilt making.

Buddy System (2001) is 'an interactive art work based around crochet skills' (ibid.), which broke down the convention between audience and artwork. Part of Auckland Art Gallery's inaugural Triennial Bright Paradise, O'Neill's *Buddy System* opened the process of art making by inviting the viewer to participate in the production of crochet flowers. These were then hung on the wall in a grid, the remnant artifact of collaborative efforts, which remained for the duration of the exhibition. They were then dispersed to friends. The tendency in contemporary art for participatory or relational processes was only just emerging in international art (Bourriaud, 1998) at this time.

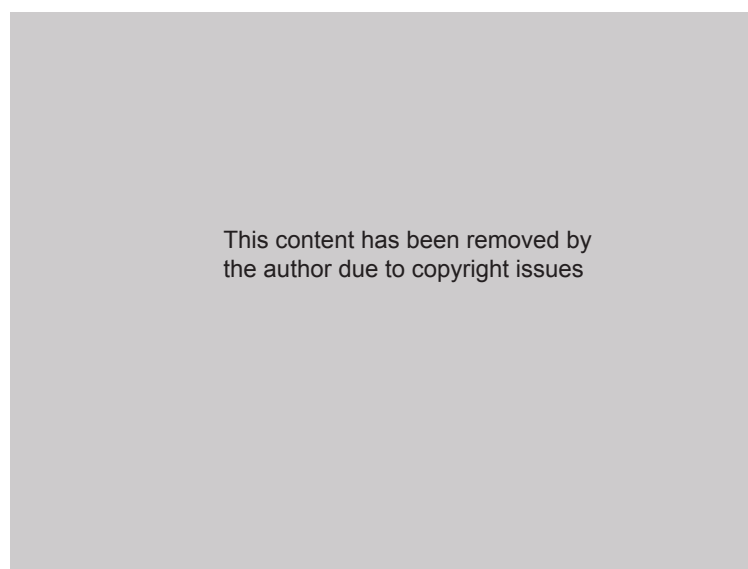


Figure 24. *Buddy System* (O'Neill, 2001).

To elicit interaction, O'Neill demarcated a creative making space by replicating elements in the home of a Cook Island mama. This simple intervention into the gallery space disrupted the viewer/object disjunction. By opening the work to durational occupation of the gallery through social interaction, by drawing on material and techniques used in the Cook Island cultural production of tradition, O'Neill allows for continuum to flow through the circularity of feedback in the exchange of knowledge. The observer/participant in O'Neill's collaborative work was part of the system (as in, and of, the production and process). Though

directed by O'Neill in a situation stipulated, or constructed, by O'Neill, the viewer made the choice, stipulated their purpose, to join in. The artist here observes the system and is part of the system. That is, they are the observer/participant and the observed. The artist here, is also the control mechanism with regard to the cybernetic continuum.

In reference to the work *Buddy system*, Curator Robert Leonard considers the invitation 'to join a friendly (Pacific) community that expresses belonging in a highly prescriptive way, with limited opportunity for individual expression' (Leonard, 2006, para. 15) as problematic. For Leonard the limitation of expression is a cause for contention in the viewer who chooses to opt out of participation. That is, to not participate portrays a lack of community spirit.

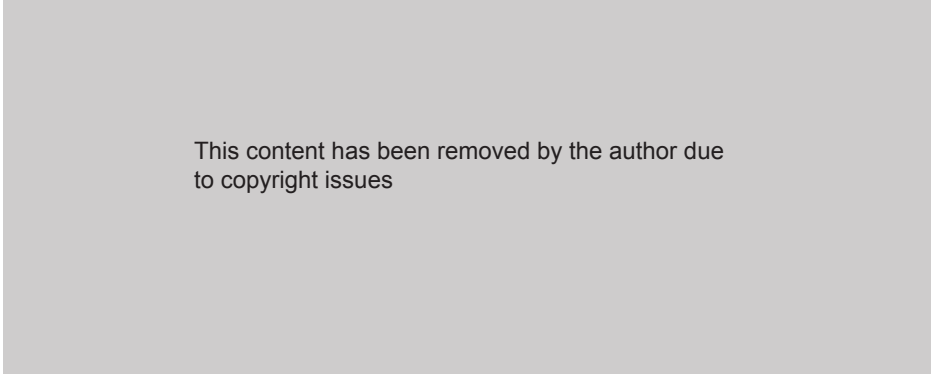
However, I suggest that through Refiti's notion of Vā (the space between, that flattens boundaries of space/time, where connection is made) as a relational experience, and the acknowledgement of the observer as part of the cybernetic continuum, a connection (or in this case a belonging or acceptance of community spirit) to Leonard's viewer can be made. Here, outside is not outside but part of the whole.

This also brings in the notion of multiplicity of forms to knowledge. That is multiplicity here, occurring through various mechanisms in which O'Neill relays ancestral knowledge; such as knowledge transfer through learning by doing and knowledge acquisition through observation, and knowledge through material output that is art production.

The material output here, the crochet flowers, are artefacts embedded with a language that has a particular value to the past and present, as well as serving as a symbol for the future. In this way, in continuum O'Neill's work has potential to become iconography.

Encoded production, Lily Aitui Laita

The connection to ancestral knowledge in the practice of artist Lily Aitui Laita⁵⁵ is encoded in art production. Vercoe suggests, 'Laita's works emerge as both abstract and provocative. They often do not allow explicit or didactic responses, nor can their underlying narratives be grasped at a glance' (Vercoe, 2002, p.205).



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Figure 25. Pari'aka (Laita, 1989).

Laita's works involve 'a painterly and gestural approach, using oil stick and paint' (Vercoe, 2002, p.203). Often the base of these works is black builder's paper, which offers large-scale production and innovative process of paint application. Laita's formal concerns focus on the quality of surface and texture, the contrast between light and dark, by using oil's depth and luminosity to evoke a third space. These aesthetic qualities are blended with intuition and often the underlying narratives are related to personal experience (Vercoe, 2002).

Laita's iconic work *Pari'aka* (1989), oil stick and acrylic painted on black builder's paper is a large scale work that reflects these aesthetic qualities. The work is loosely divided into three interconnecting parts that use text and image. The left hand side has the word *Mau*, and a

⁵⁵ Laita is an Auckland based painter of Samoan and Maori ancestry. She trained through Elam school of Fine Arts in Auckland and has exhibited nationally and internationally since the 1980s.

figure 'representing Laita's great-grandfather who was a member of the Mau movement' (Vercoe, 2002, p. 204). The center is occupied by a figure that represents the artist with outstretched arms. The arms take the form of feathers symbolizing pacifist Te Whiti o Rongomai⁵⁶ (Te Whiti). The right section of the painting has the words Te Whiti and Tohu⁵⁷.

The work is an acknowledgement of connection between pacifist struggle in the Pacific. That is the relationship between Maori of Parihaka, in the late nineteenth century led by Te Whiti and Tohu, and the Mau movement⁵⁸ in Western Samoa led by Tamasese⁵⁹ (Vercoe, 2002). At the core of this connection is reciprocity. On a trip to Parihaka, Laita discovered the gifting of 'woven mats and coconut bags' (ibid., p. 204) from a Tamesese supporter as reciprocity to Maori of Parihaka for their support of Tamesese while incarcerated in Mt Eden prison (Vercoe, 2002).

While reflecting on her own processes, Laita (2012) states:

[...] there is always something of the 'other' about my work that I'm never certain is the id or the ego, or who cares? [...] Boundaries, I think, are transparent and definitely liminal and in a state of flux, but I am constantly falling off my discourse/horse and landing in the 'vā/tā' (space and time before dawn). Which is fine, as I think about painting as a language and a bodily function – a necessity and a means to communicate. (p.40).

Laita's particular expression through mark making strikes a

⁵⁶ Taranaki leader and prophet. The founder of the village Parihaka.

⁵⁷ Refers to Tohu Kakahi, a relative of Te Whiti. Both men led non-violent, pacifist resistance to the confiscation of Maori land during the 1870's, by the New Zealand government.

⁵⁸ A non-violent movement in Samoa, during the early to mid-20th century, which resisted colonial rule in the advancement of Samoan independence.

⁵⁹ Tupua Tamasese Lealofi III, leader of the Mau movement. Killed by New Zealand police on the 28th December 1929, known as Black Saturday, during a peaceful demonstration.

visceral chord. The contrast between light and dark through the play of white and coloured gestural marks that jut out from the void of the black background, suggest movement and encapsulate time. This culmination of elements, the outward expression of production, I suggest are akin to remnants of an embodied connection to ancestor. Here each product is a cycle in the circularity of feedback, the flux from intuitive practice to formal exploration.

I have discussed how knowledge as a form of indwelling or tacit knowing is present in the production of my practice (Polanyi, see Chapter One, p. 33). Inherent knowledge is expressed in Laita practice as too, the practice of Tongan, multidisciplinary artist Sopolemalama Filipe Tohi of which I discuss next.

Material practice, same but different, Sopolemalama Filipe Tohi

Tohi believes 'that within every individual there exists an inner core, containing a continuum of cultural knowledge' (Vercoe, 2002, p. 196). He is a Tufunga Lalava⁶⁰, a master in the ancient art of Haukafa⁶¹ and as such he binds gods and genealogy through materials: from stone and wood carving, to steel sculpture and painting. Tongan sennit lashing is at the core of Tohi's practice. His exploration and extension of this art form is often referred to as lalavaology or lalavaometry, which art historian Billie Lythberg suggests is 'best described as material philosophy' (Lythberg, 2013, p. 14).

Sennit lashing, used in a utilitarian manner to bind tools,

⁶⁰ Sennit braiding, the lalava is usually done with two colors of braid. See artist's website <http://www.lalava.net>

⁶¹ Sennit braiding, the Haukafa is traditionally binding either one or two colors of sennit. See artist's website <http://www.lalava.net>.

housing and canoes in the Pacific, is a mechanism that interprets the environment and communicates philosophy (Hoskin, 2006). The 'symbolism of tying and binding is complex' (Tohi & Scothorn, 2009, p.140), it is technology that Pacific nations have in common. To understand the patterns is to understand the past (ibid.).

For Tohi (Tohi & Scothorn, 2009):

The lalava patterns have various meanings in Tonga [...]: one represents the movement of the current, another represents the fish. Birds and fish were common symbols. People applied aspects from their environment to their culture, and then worked out how to fit those ideas into patterns. (p.140).

Tohi believes the Pacific material culture of our ancestors afforded different gods different materials and meanings. Tohi states, 'we were connecting to gods and genealogy through materials without being concerned with representation [...] Binding was the link back between genealogy and the gods' (Tohi & Scothorn, 2009, 143). This form of abstraction, for Tohi, places the cultural production of the Pacific on a par with modern art (ibid.).

Anthropologist Susanne Küchler (2007) makes parallels between the use of string in modernity art and its use in Tongan lalava and Tohi's practices, suggesting that string in both instances 'undermines the opposition of mental and material worlds' (p. 130).

Küchler (2007) states:

These two examples show the materiality of string being used to think relationally, to seek out affinities

and to translate the connection thus found into other media and artefacts in order to think through and understand how to generate the same, but different. (p.132).

The material process offers a different perspective on art making that allows one to 'reflect on the nature of drawing things together visually' (ibid., p. 133).

For Tohi, in its essence, Lalava is pattern formation through intersecting two strings. For patterns to exist both must be present, a balance of male and female, 'lines and space, infinitely intersecting in nature, mind and society' (Hoskin, 2006, para.10).

In a way it is a binary code akin to zeros and ones, a mix of seemingly infinite possibilities. In a way this is similar to Snibbe's use of sense software and hardware as interdependent entities, where one cannot exist without the other. The iterative use of code is like Kutchler's description of 'thinking relationally', to generate the same but different. In respect to my practice, the software code that lies behind the image, is based on existing code. I will expand on this in Chapter Six in reference to my practice.

Lalava is a material form of communicating information, a memory technique that embeds knowledge. The cybernetic continuum, where communication is the circularity of information, can be connected to lalava. It is also a continuation of iconography as well as an encoded process and language.

The body of work of artist Fatu Feu'u⁶² makes reference to Samoan knowledge by drawing on designs (iconography), from the tradition of practice, in Siapo⁶³ and Tatau⁶⁴. For Feu'u the use of these motifs in his art 'convey symbolic visual narratives' (Vercoe, 2002, p.192) and concerns that are at the heart of the community they come from (ibid.). Feu'u iconography includes stylized forms of 'frangipani, gogo, tern, anufe, caterpillar and objects of evident symbolic potential, hand prints, paddles, scales' (Pereira, 2004, para.14) found in siapo and tatau. According to New Zealand Curator Pandora Fulimano Pereira (2004) the mask motif has features personal symbolism for Feu'u. Adopted from Melanesian pottery, the Lapita mask in Feu'u's repertoire 'has become symbolic of the quintessential spiritual ancestor, and the spiritual dimension' (Pereira, 2004, para.16).

Pereira (2004) states that 'Cultural values of balance, symmetry, exchange and reciprocity informed ancient designs' (para. 14). These patterns Pereira suggest 'remain and continue to be incorporated into Pacific tapa and tattoo [...] (yet) find new expression in the works of Feu'u' (ibid.) as he adds his own interpretations to the designs. In this way Feu'u's use of myth is like Tulafale who 'employ allusion, myth and imagery, they plumb Samoan history for symbolism and allegoric metaphor' (ibid., para. 9).

The use of design and repetitive pattern from Siapo and Tatau by Feu'u is continuation of ancestral knowledge and has particular relevance to Manganian cybernetic concerns of this research project. His use of motifs through various mediums and his ability to afford new meaning through his life experience to these symbols allow this connection to

⁶² An artist of Samoan descent, Feu'u immigrated to New Zealand in the 1960s. He is a seminal figure in the landscape of Pacific Art. He holds two chiefly titles from the Samoan matai (appointed heads of kin groups) system, one is ali'i, chief, the other tulafale, orator (Pereira, 2004).

⁶³ The Samoan cultural art form of bark cloth making.

⁶⁴ Body Tattoo

thrive, continually becoming, through the circularity of feedback. The feedback occurs through the transformation of these symbols through the internalisation of ancestral knowledge, the process of creative practice, and material exploration. A coming and going from/towards homeostasis.

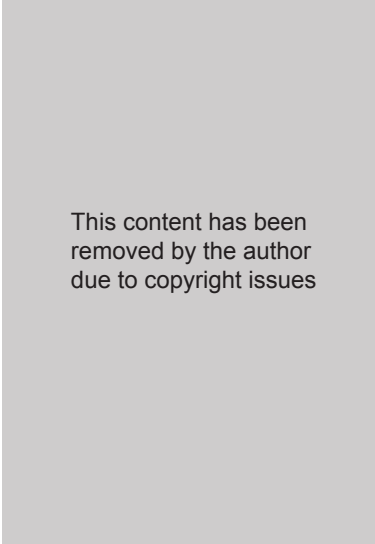
Pereira (2004) aligns the process of myth and metaphor making in the practice of Feu'u as similar, even drawing on his role as Tulafale. In the context of this research project I connect Feu'u's ability to derive new meaning from specific iconography as akin to Von Foerster's discussion of the observer, in cybernetics of the second order (see Chapter Four, p.90), where the observer stipulates his or her own purpose. That is to say Feu'u has defined his own purpose in the use of motifs, and added a layer of meaning to the ancestral knowledge. The artist has the effect of both altering and continuing a system. Drawing on Von Foerster's terms, Feu'u acknowledges and assumes responsibility for his actions, which were afforded to him by his community⁶⁵. Reciprocal relations with his community are in part fulfilled by his practice through the continuation of ancestral knowledge in his artwork.

Mariko Mori - computer technology and ancient knowledge

Japanese multimedia artist Mariko Mori combines computer technology with tradition, myths and symbols of ancient philosophies, particularly Zen, Taoism, Buddhism and Shintoism. Her interests in these religions lies in how 'each relate mind to nature' (Hixon, 1998).

Mori draws on diverse techniques in her practice such as the photographic series *Play with Me* (1994), video *Nirvana* (1997), *Tea Ceremony 111* (1995) and the performance and

⁶⁵ His titles, ali'i and tulafale, are bestowed upon him by his family.



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Figure 26. *Tom Na H-iu* (Mori, 2006).

interactive installation *Tom Na H-iu* (2006). Like Snibbe's reference to the spiritual life beyond the everyday in contrast to the very current connection and presence of ancestor and (connecting) to ancestor, in the work of O'Neill, Laita, Tohi and Feu'u), Mariko Mori's work 'marries spiritual aspirations with cutting edge science and technology' (Nicholson, 2006, p. 118).

Author Scott Indrisek (2011) states that Mori reinterprets ancient religious forms 'through the prism of modern thought' (ibid., p. 60). For art critic Kathryn Hixson, Mori places the ancient past with contemporary notions of the future. Mori exploits 'the potential of technology for art making in new boundary blurring ways' (Hixon, 1998, para. 1).

This fusion between art and technology can be seen in the work *Tom Na H-iu*, the name of which refers to an ancient Celtic site of spiritual transmigration:

[the work] shows the perpetual death of stars through different light, to express our own mortality and the eternal flow of life and rebirth. *Tom Na H-iu* has intelligent LED lighting that interacts and responds to the signals from the Super-Kamiokande neutrino

observatory in Tokyo. It then visualizes the internal light of dying stars; the changing color patterns of the sculpture correspond to the observatory's neutrino readings. (Centineo, 2008, p. 148).

In a dark room pulsating light, shades of purple and red emanate from a singular monolith. The light is 'a live feed from Super K (Super-Kamiokade observatory, University of Tokyo's Institute for cosmic ray research, Japan) transforming incoming data into the ethereal glow of the sculpture' (Austen & Mori, 2013, p. 46). The different hues reflect the different particles detected (ibid.). I imagine that I am sitting, collapsed in a corner. My eyes are open and I am watching a purple light emanating from an object. This light is soothing, some what hypnotic. However I am reminded that I do not like lavender. It is not the light that holds me but the darkness and the pulsating rhythm that emerges from it. I am held by the motion of becoming (in to and out of, become and end) that occurs in this work.

In a sense a cybernetic relation exists between the Super K and *Tom Na H-iu* that is the circulation of data from the Super K that feeds into the sculpture wherein the LED system reponds accordingly. This change by the system alters the ambiance of the environment the work sits in. However the work does not feed back into the Super K. The work can be positioned as a vessel which in a way shows the currency through pulsating light of the Super K (neuron, cosmic particle which Mori refers to them as) and also an end point of that translation of energy. It ceases. This reflects Mori's interest in the transient existence to the natural rhythm of the cosmos (Austen & Mori, 2013). I align this rhythm to the notion of circularity of exchange in the feedback loop, the flux that is in multiplicity self as other, *tēta'i*. I understand these elements are a becoming, a making in the sense of the varying qualities associated

to movement in the Samoan Vā, made by Refiti, (see Chapter One, p. 23) that enables the coming into being of tangata (Refiti, 2013).

This quality has an internal resonance. It is that in which connection to all things can be made, where the interior is turned and made exterior. Another way of seeing oneself in the other, tēta'i.

Summary

Feedback presents itself in many ways with regard to interactive/participatory practices and processes of production. The feedback loop through viewer interaction, software analysis and the digital medium that materialises an artwork, affords a relation where bodies can be mediated. This circularity brings to the fore interdependency in this relationship as in the work of Kakehi and Naemura, and Snibbe.

The artist can simulate the control mechanism by laying propositions that play as a code in which one may (inter) act. These can be used as a mechanism in which to continue and extend ancestral knowledge as in the work of O'Neill, Feu'u and Mori. This can occur regardless of the presence of a digital component. The artist as maker, is the mediator of ancestral knowledge, is further explored through encoded processes and material practice by Laita and Tohi.

The proposition that the artist is mediator is extended to the viewer/participant. This is done through the porosity of information within the Manganian cybernetic continuum. That is, this control is rendered porous through the inevitable malleability of information. The circularity of this exchange allows for control to be supplanted as in O'Neill's *Buddy*

system (2001), where the observer is participant and also co-author in the making of the work, a sharing of control and responsibility.

In this regard the observer/participant has the responsibility and the ability to stipulate their own purpose. To op in or out of buddy system, or, with Kakehi and Naemura's *Through the looking glass* (2004), to choose which form of self to privilege with a win. Porosity is a void, a gap, the Vā, a site of potential. This is creative potential, practice or interpretation of practice. These terms are not always mutually exclusive and are relational experience where multiplicity arrives.

Commentary on practice

This chapter analyses my practice by drawing on exploratory artworks that serve as portals for iteration, generation and testing sites. This discussion offers insight into the concluding installation, which is in a state of becoming. Lensed through the notion of the Mangaian cybernetic continuum I connect relevant themes from my early work, both digital and non-digital forms, to the current discussion. Certain recurring themes have shifted and deepened over time, grounding the conceptual framework for the current project.

I will draw on the series *untitled interaction* (2014) to discuss the manifestation of the head, face, portrait and surface in my work and how mechanisms for dividing this work call for a reading through observer/participant in the (Mangaian) cybernetic continuum. I will then discuss the VR test work *untitled, figures over ocean, in Oculus* (2014). The VR test work was generated with a two-pronged intention: one to create an experience in the gaming environment Unity 3d and second to test the validity of the Oculus Rift as a mechanism for artistic delivery of the thesis.

I will also draw on particular elements of additional artworks *kurosawa* (2015) and *manchurian in mind* (2015).

I describe these as testing models. They are two worlds created to extend and develop a visual language in the 3D gaming environment. In part, these latter works were created to test the boundaries shifting away from the aesthetics of a standard gaming environment. *manchurian in mind* discusses how discovery is made in practice and how this then, develops into useful strategies in *kurosawa*. I will then end with a brief discussion of the use of darkness in my installations.

As mentioned in the introduction section, I have deliberately used a mixed range of tones in the writing of this chapter. I have found it more apt to articulate parts of creative practice with a poetic voice. Some parts may read like a function manual and other parts attempt a poetic weaving of concepts.

Portrait in Processing 2014

untitled interaction, (2014) is a series of works conducted to test the capacity to make an interactive project using digital technology. The purpose was to explore the effect of mapping the digital medium with the physical world. The iterations drew from the same base photographic image: a self-portrait. This image was then processed through the software, which was altered to enable different properties of the image.

The key technical priorities were to resolve audience tracking movement in the physical space using a digital camera and to map the effects of this movement to the digital medium. Second, I wanted to complete the cycle from a desktop software platform to an installation art framework installed in a physical gallery site. In doing so this series provides a platform to discuss the notion of

flux (circularity, recursion, feedback).

I will open the discussion by briefly describing the series of three works in the *untitled interaction series* made in 2014, including 'backend' details and how they were received in group critique when taken to installation format. I have decided to discuss the critique of my work as it gives insight into some of the issues that run as an undercurrent to my practice and this research project. I will then engage an in-depth discussion of *untitled, interaction [no. 3]*, (2014) in terms of recurring themes the work aligns to in my larger practice.

untitled interaction [no. 1]

untitled interaction, [no. 1], is a continuous combination of the words "cunt, coon, nigger, savage" repeated across the screen making up the figurative details of the portrait. The colours of the image are an aggregate of the pixels

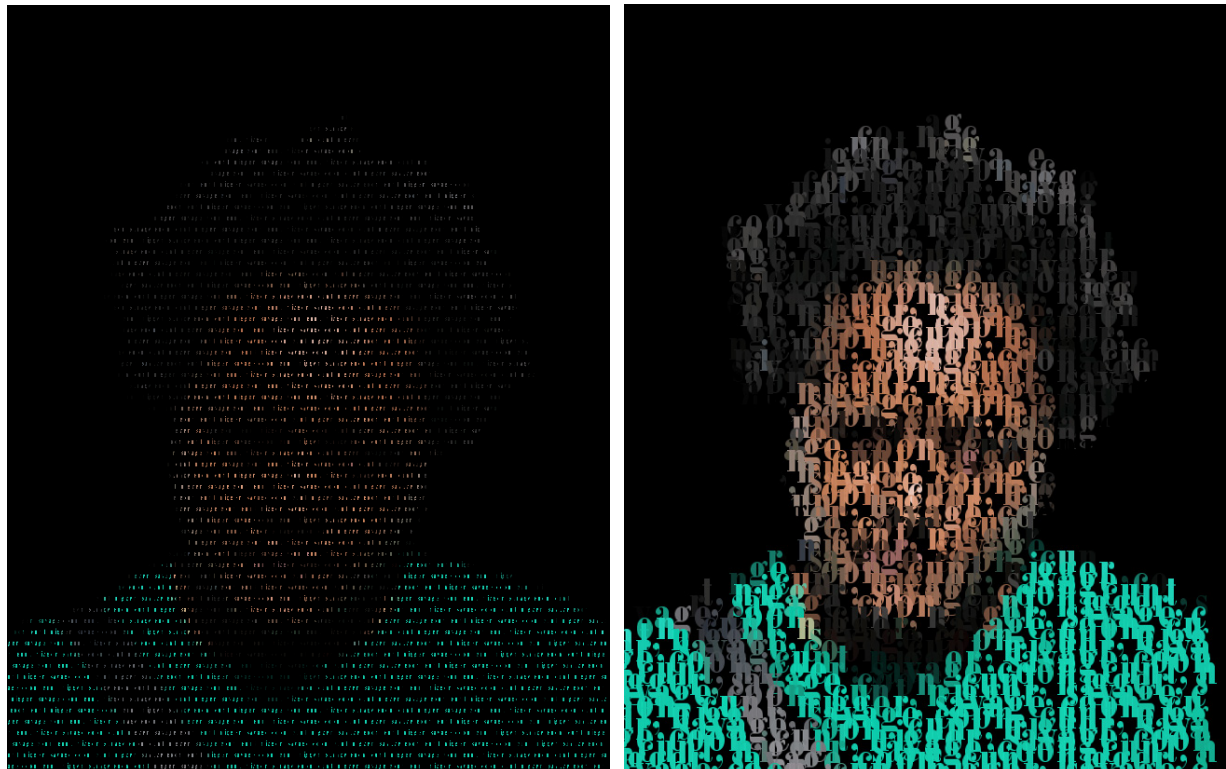


Figure 27. *untitled interaction [no. 1]* Demonstrates the change in the state of content (Tapuni, 2014).

present in the original digital photograph. The words would increase and decrease in size depending on the motion of the viewer (see Figure 27). This was the most politically charged version of the work. (I will discuss this idea later in the chapter.)

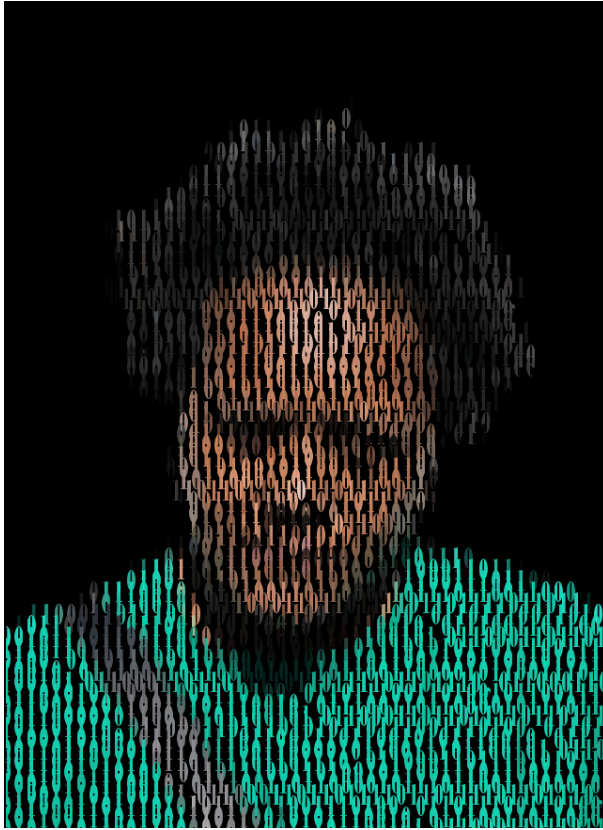


Figure 28. untitled interaction [no. 2] (Tapuni, 2014).

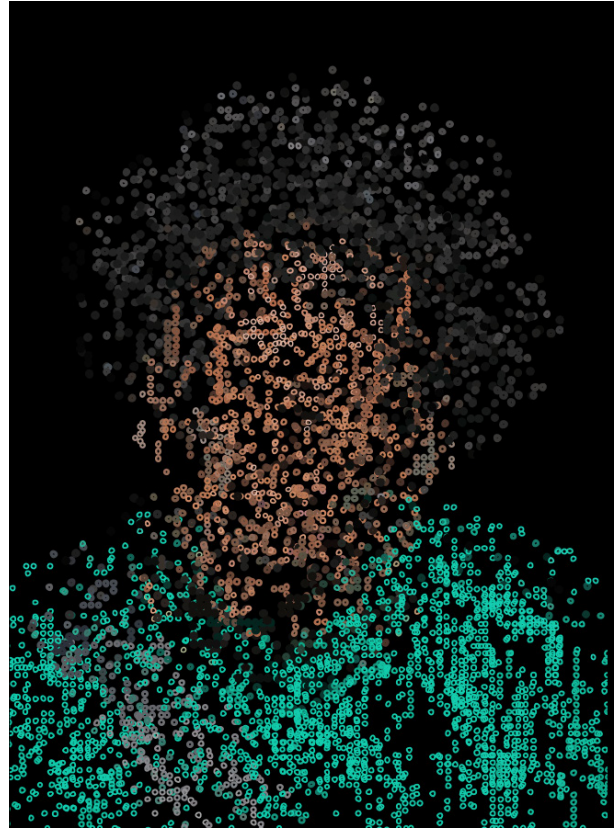


Figure 29. untitled interaction [no. 3] (Tapuni, 2014).

untitled interaction [no. 2] is also a combination of the same word set, however written in binary code, using the combination of 0's and 1's to represent each letter that then made up each letter. The same colour schematic, font type and movement trigger were used. (see Figure 28)

untitled interaction [no. 3] reinterpreted the image as a series of circles where the space between them would increase or decrease, fluctuate, depending on movement in front of the webcam. The same colour schematic was used. (see Figure 29)

Backend detail

Processing is a software prototyping and data visualization tool. Ben Fry⁶⁶ and Casey Reas⁶⁷ started developing Processing in 2001 while they were graduate students at MIT Media Lab⁶⁸. I chose to use Processing because it is free open source software, it is designed for interactive installation application and it considers artists and designers as the end user, therefore the level of coding is accessible and is well documented online. These particular tests were developed in Processing Version 1.5.1.

The code for this series drew on two tutorials. The first is from the book *Generative Design* (Bohnacker et al., 2012). The exercise *P.4.3.2 Type from pixel values* (ibid., pp. 308 - 311) matches a pixel co-ordinate from a still image with a letter character in a string⁶⁹. What results is a likeness of an image (a portrait) that is made up of words. This resolve had changes made to the resulting portrait through keyboard input and mouse transition. This differs from the live feed I was seeking.

The other component of code I needed to resolve was the importation of a live feed into the program, mapping the change in the video feed to the pixel location in *untitled interaction [no. 3]* and font size in *untitled interaction [no. 1]* and *untitled interaction [no. 2]*. To achieve this I drew from Dan Shiffman's⁷⁰ exercise 16-14 *Overall Motion* in the book and online resource *Learning Processing, a beginner's guide to programming images, animation and interaction* (2008). Shiffman's exercise outlines how to import video camera footage and use an average of the total

⁶⁶ A data visualization expert and principle founder of Fathom

⁶⁷ Professor at the University of California, Los Angeles

⁶⁸ Interdisciplinary research laboratory at Massachusetts Institute of Technology, USA

⁶⁹ A data type that can be a sequence of characters

⁷⁰ Programmer and Associate Arts Professor at the Interactive Telecommunications Program at NYU's Tisch School of the Arts. Part of the team that has developed subsequent versions of Processing and key advocate for learning and teaching in the online Processing community.

movement value to increase or decrease the size of a circle. As the work developed, I re-appropriated this standardised exercise for political means.

Capturing movement is done by capturing a frame and cycling through the pixels to detect difference by comparing colour values of previous and current frames. To get the desired affect I sought, that is to make the portrait move in response to movement detected by the webcam, I mapped mouse X and Y factors from the pixel/typography exercise to the motion values from the Shiffman exercise. I then changed the colour of the background frame-set to black so the background would render invisible when projected onto concrete as in *file corrupted* (2009) (see Introduction, p.11). This gave a floating effect to the fluctuating image, which could be grounded by placement in regards to the site-specific placing on the wall and location in the room.

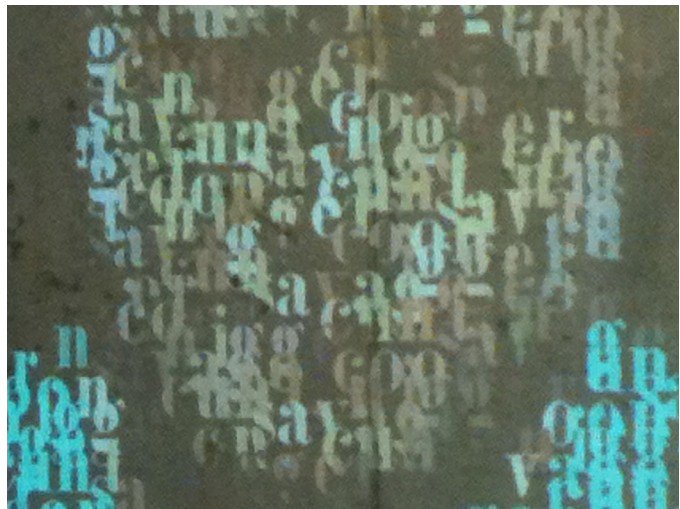


Figure 30. *untitled interaction [no. 1]* Installation detail in the AUT Postgraduate testspace (Tapuni, 2014) .

Installation of work

One enters into a darkly lit room. Three of the four walls are white; the floor is tiled by textured grey vinyl. On the only concrete wall in the room is an image that has semblances to a portrait flux as if it hums. On the floor in front of it a projector and laptop face it. This is where the portrait is emitted from. Connected and adjacent to

this set up is a webcam. It faces me. I move. The portrait dismantles.

Group critique

These three iterations were critiqued by AUT's Postgraduate Art and Design Performance research group. This process was a reading of the work without explanation of the key concerns in the research project. This was conducted to see how the relationship between the audience and the work would unfold.



Figure 31. untitled interaction [3] Installation in AUT Postgraduate testspace (Tapuni, 2014).

This test took the interface away from the computer screen. The effect of hiding the frame and background, by projecting directly onto the concrete wall, allowing the portrait image to emerge from the wall, made reference to *file corrupted* (see Introduction, p.11). In this way it was a successful run of experiments. When a participant enters the installation, a digital camera connected to a computer detects them. The camera registers the movement of the participant and sends a signal through software code to recompose the self-portrait,

effectively rearranging a face. The three iterations were individually displayed one after the other.

untitled interaction [no. 1] was displayed first and got the most responses. The students entered the space before the lecturers. This prompted a brief informal encounter with the work. The glitch-like movement of the large-scale portrait, the contraction and extension of the image appeared to startle the students. Very quickly some made connections between the camera and the movement.

They easily identified their impact on the image, to change its shape and form. The focal point of their engagement was to elicit this interaction through playful means. That is they became aware of the impact of their presence on the work but not necessarily the content of the work. In a sense, within this playful moment of interaction, attending to the distal, that which is outside of one's self (the focus on shifting the image rather than seeing the meaning behind the image), is an instance of the hidden component of knowledge in the Manganian cybernetic continuum.

The initial encounters allowed for playful interactions, walking around the space, a fluid interface *until* one realised the meaning of the text that made up the image. This is the moment where awareness of meaning comes to the fore, where meaning begins to *ata*. The participants were taken aback by the confrontation of the text. One questioned whether they were reading obscenity into it. The portrait appears as flashes of code leaving one to question what one sees. The negative space made the work appear skull-like. As the letters became larger, the words became more confronting.

The arrival of the lecturer's commenced the formal aspects of the session and triggered an atmospheric shift in the environment. The entrance of a new control mechanism

altered the dynamic systems of exchange that were at play between the student/viewer/participant and the work (one could even say that perhaps, overall, this system was one of homeostasis). Here there is a recall to *tū* (stand), to position oneself in a critical frame. The head replaced the body in play, in movement and in action. The formal session served as the point of critical reflection on the part of the participants. The discussion focused on the words that made up the portrait.

Group discussion of content

The first work that had the words *cunt*, *coon*, *nigger*, *savage* got the most response. One lecturer had the desire to see himself in the image and expressed disappointment it did not work at a high level of technical mechanism. From my perspective the priority was not to substitute the viewer for the self-portrait in the work, but to allow for the audience to become gradually aware of their effect on the image. Their movement, or sensed presence, destabilized the image by distorting the features of the person and activating the politically loaded text. In their desire to view their surveyed body presented back to them, the audience, ironically, sought to overlook the portrait.

It was obvious to the viewer/participants that the image used was a portrait of myself. This then, became an unwelcomed cue to discuss the work in terms of the notion of Pacific 'savage'. References made considered the 'savage' as illiterate, non-sensical, non-intellectual and non-linguistic people who were eclipsed from civilization because of their illiteracy. The portrait was considered an ironic provocation, to give back language as portrait, language as identity.

The savage expressed in the comments made is a mythic notion posited by the civilized intellectual. The issue and perhaps point missed here is that the language that made up the portrait was neither mine, nor my ancestor's identity but belongs to the perspective of the *tū kē* (*stand in difference, other, wrong*) of the past and in the case of my experience during the critique, a very present perspective. The viewer/participant was implicit in the rearranging of the identity.

There is a strange dynamic, possibly as a response to the strong words, more likely a response to the fact that I am of Pacific⁷¹ heritage that created a demarcation around the response to my work. My work was read in relation to my heritage and not considered in regard to contemporary art or media art practice. Comparisons were made to aboriginal dot paintings and traditional "non-Western" art forms rather than to contemporary artists, such as Chuck Close who is an important reference point in my practice.

This test was successful in the evaluation of *Processing* as a software tool that delivers interaction between digital and physical space via devices such as the webcam. The exchange of flow between these spaces is apparent though not overly complicated. Flux in form however is easily read. The installation 'worked' on the level of play as described in the initial reactions of the audience. However on a conceptual level, after this test I decided to avoid the continuation of explicit text as the sensationalism of the language dominates the reading of the work. I have in past practice used explicit statements in my work. However these works do not leave the studio. This was an apt reminder of why I refrain from exposing these works. This in part has also led to a questioning around the use of my own image, my face, a brown face. It is loaded with preconceived notions

⁷¹ I use this term to stress the generic and very generalised sense of racial profiling. This is as opposed to saying very specifically that I am Māngaiān.

and negative connotations, depending on the viewer and the context. In an everyday sense, I am, my intentions are, often mis-read.

The next section discusses recurring themes in my practice, that of continuity and iteration, the use of the face, head and portrait in my work and divisive methods used to reiterate the incomplete body and access to knowledge. These themes have bearing on the *untitled interaction series*.

Continuity - continuum through iteration

The use of iteration in this series functions conceptually to the notion of circularity and 'akapapa (see Chapter One, p. 25) as processes of continuity. Through circularity, continuity can be considered here in the re-use of a single image to achieve multiple outputs; to go from and return to, the same image, in an effort to deepen and accrue knowledge.

This process parallels Kutchler's description of 'thinking relationally', to generate the same but different, in the binary-like lalava work of Tohi (see Chapter Five, p.119). In respect to my practice, software code, 'that lies behind the image', is based on existing code. In the series *untitled interaction*, the reuse of the same portrait, using a base code, with slight variance in each program, results in alternate interpretation. I change the script to vary the outcomes, a sameness in difference. This scenario can also be viewed as a layering process akin to 'akapapa. That is, similar to genealogy, the accumulation through reproduction, generation of code⁷², adds to what is already there.

Furthermore where Tohi's Lalava practice is a material form of communicating information, a memory technique that embeds knowledge (Chapter Five, p.119), the image output

⁷² As there is multiplicity in the slight variance of code, there is also a disjunction in surface appearance between code and image, alike two different sides to the same coin. More research into the methods and philosophy behind programming software is needed to deep this strand of thought.

in my work, whether representational or abstract, is the material form of communicating. The flux that flows in the exchange of data, the shifts of the material in space/time transgress and constitute boundaries exposing information as porous. The artist that determines the code, is the control mechanism, observer as observer and participant. *That is, here I am the control mechanism, I am the observer and I am observed.* Through the porosity of information and the ability for the observer/participant to stipulate their own purpose, control is supplanted. That is, *the quality of porosity of information in the Manganian cybernetic continuum supplants this control while offering control to the viewer/participant.* This concept seems to exist in paradox where one is considered observer and the observed.

This processes of continuity through circularity and 'akapapa can also be aligned conceptually to the way in which I use, and reuse, the same photographic image as a base in portrait and self-portraiture in my practice.

Head and face

The use of the head and the face are elements that reoccur in my practice. The head surfaced in my work between 1995 and 1998, cut off from the body as in the Descartes division of the mind/body split. I considered this split to symbolize that which is not connected, not in continuum, the division between body and other, and that which was not.

For instance the tongue and cheek work *pin the tail on the ***key* (circa 1997) (see Figure 32), acrylic and oil paint on canvas, from what I now refer to as the One-liner series⁷³ features an oversized head disconnected from its body. The

work is a play on the game "pin the tail on the donkey". The

⁷³ The one-liner series has built itself up as a body of work that is obvious visual plays on statements. They are often slogans or funny statements. They are often drawn in or painted in a comical style.

over inflated head is symbolic of the over inflated imaging that I attached to imperialist thinking of the nineteenth century. Another recurring feature, even in this early work in my practice, is the use of black and white in contrast to colour.



Figure 32. *pin the tail on the ***key*. Oil and acrylic on canvas (Tapuni, 1997).

In *pin the tail on the ***key* the black and white head and figure is associated to the imperial other (as in *tū kē* (Chapter One, p. 29). It signifies the non-living or rather the disconnected thing, the head without a body, a surface as such without substance. However this is not the only way in which I use black and white/light and dark. Over time these extreme polarities have become more complex as they are used in strategies of emergence within my practice.

For example, in my exhibition *subliminal shots* (2005) (see Figure 33), an installation of black and white paintings was placed in cardboard boxes that were arranged on a floor in a room. The room was lit with one light making it hard to view. On entering the space the viewer's eyes would have to adjust to the low level of light. While they walked around the space, as their eyes adjusted, the paintings would start

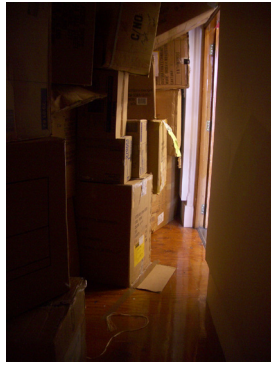


Figure 33. *Subliminal Shots* exhibition. Mixed media installation ArtStation, Auckland. (Tapuni, 2005).

to slowly reveal themselves. So the play with light and dark within my work is also about shifting eminent space of transition. The transitions from light to darkness can be found in my work made with digital material and installation practice in this research project, which I will discuss later in this chapter.

To return to *untitled interaction [no. 3]*, the work is a portrait, though not fully cut off at the head. It is in colour and as such has a semblance of life, though distorted in its abstraction. It almost appears surface. Before I discuss the face as surface in my practice and its implication to the current project I will discuss portrait in my practice, as it is a keystone to understanding the trajectory of my practice with regard to its current focus.

Portrait

Initially my interest in portraiture (1999 to the present) was used as a device to master the technique of oil painting and strengthen my representational drawing skills. I had to draw limitations on myself to shift from a more expressive mode of painting production. This was done through self-portraits via my mirrored image and photographs of my family.

I was drawn to the work of American artist Chuck Close such as the large black and white hyper-realistic series he produced between 1967 and 1970 of which *Big Self-Portrait* (1967-68) (see Figure 35), *Bob* (1970) and *Phil* (1969) belong to.

Close's hyper-realistic works are a pictorial language that go beyond the real, exposing minute detail through the large scale of his canvas and extreme close ups of his sitters. His more abstract work *Emma* (2000) and *Self-portrait* (2004-05) (see Figure 34) offer a reading more inclined to material processes and construction in a sense of identity.

Figure 34. *Self-portrait* (2004-05). Oil on canvas(Left), (Close,2005).

Figure 35. *Big Self Portrait*, (1967-68). Acrylic on gessoed canvas (Right) (Close,2005).

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Close works with gridded photographic images and methodically transfers the image, in proportion, on to canvas. In a sense, Close would deconstruct an image then put it back together again. I was drawn to the large-scale nature of Close's work, the exposure of flaws, minute details and the extreme close-up that frames the face. The extreme exposure and intimacy in Close's portraits work as a barrier to understanding the portrait as a whole. Identity in these works is constructed where one does not see the whole. I find this notion interesting.

Like Close, I was intrigued by the potential to paint larger than life sized portraits, though my works were significantly smaller. I drew on images of my family and myself. My face drew in complexity depending on the viewer

and how they perceived my image. I was drawn to the polarized way in which the work could be considered. By this I mean, at one end of the spectrum my face, (which can be construed, dehumanised, as a *brown face*) can be seen as familiar, to some they see the ancestor beyond the surface of my face. At the other extremity, through racial profiling, I am considered a potential threat, ignorant and impoverished.



Figure 36. *untitled, portrait of mum*, oil and acrylic on canvas (Tapuni,2002).

These extreme notions were (are) drawn from personal experiences. This agenda had (has) agency in the series that I placed in the critique mentioned above. Major assumptions are made based on racial profiling. I draw on this in my work. In doing so however I leave myself exposed to being critiqued through this lens. I find this problematic, however I take responsibility for my actions in this regard.

I use the mechanical device of the grid to transfer an image from a photograph to the canvas, as does Close. However I also used the grid as a method to simultaneously construct and divide the face. It is a barrier between the viewer and the subject, a method of subversion.

For instance in the work *untitled, portrait of mum* (c.2002), oil on canvas (see Figure 36) from *Grid Series*⁷⁴, the viewer is only offered a partial view of her face, using the crop as a mechanism to suggest that there is something that exists beyond the frame of the canvas. The face itself is divided by the grid that is the background. There is a strong play, almost a resonating-like effect, between foreground and background. This is done by the contrast in colour between the green background and the various brown hues, also the difference in plasticity between the viscosity of oil and acrylic paint. This strong sense of movement is further articulated by the paint strokes used to construct the face.

The grid in this instance affords a distance between the viewer and the work. The image could be read simply as the 'divided subject', as the subject (my mother in this instance) is fragmented as a result of colonization or stereotype, rendering an incomplete subject. However a more complex reading of the work offers the audience to complete the portrait, making the grid their lens, rather than the subject being in pieces. This idea correlates with the notion of the observer/participant in a cybernetic continuum, where they stipulate purpose as in they (the viewer/observer/participant) complete the work. In this way the subject and the object of the work is the gaze of the beholder; the incompleteness is in the observing gaze and not the subject in question. The face is reflective of the viewer; a part of one's self that one is not aware of.

The distance between one's own sense of self and the way in which one may be looked upon through negative stereotype led me to working with head and body images of apes (animal) and aliens to reference this in my work, as in *monkey man* (2008).

⁷⁴ Series of paintings and drawings that explore the grid as a constructive and divisive mechanism.

However the use of the animal in my work is complex and holds multiple meanings. For instance the ape draws on dehumanising association made between a brown figure and a monkey. The animal figure also relates to our connectedness to, as and in, our ancestor, our atua, in their form of doubling/coupling, as in *tēta'i* (another, other) in the Manganian continuum. Its use and interpretation in my work is not always linear. It is not one or the other but holds a multiplicity of interpretations or connections.

Within my portrait work there is multiplicity through the iterative use of specific photographs and the continual referencing of my own image. In a way these works, in fact all my work regardless of content, are embedded with my thinking, genealogy and code. There are multiple meanings that overlay each concept in my work.

Face as Surface

The use of the grid in my paintings, is like the disseminating pixels that make up my self-portrait in *untitled interaction* [3] (2015). Both strategies of painting and digital coding render the face a surface. In my master's exegesis *The return of the Polynesian Phantom* (2010), I discussed my work *file corrupted* (2009) (See Introduction, p. 11) through Deleuze and Guattari's discussion of faciality in *A Thousand Plateaus* (2004). I was drawn to the idea that the face is not a head but a surface that is separate from the body and to operate at the level of 'faciality' is to induce a means of control (Tapuni, 2010). A concern with faciality continues into this thesis project through the reduction of the head to pixels, in the *untitled interaction* series. Using a digital camera, my head was captured and reduced to an image (large volume of pixels), a representation of the

thing. This was then further reduced, abstracted, by using software. This results in the surface-like appearance of the work, which in turn is tied to the change in an environment, primarily shift by a body, which in itself has been reduced to a surface through the function of its capture.

However, does this then mean that through these abstractions the body is absent or separate? Again drawing on the creative approach of artists such as Tohi and Laita, the role of the artist is in connection to the ancestors and this sense of connection is encoded in material processes. Thus the material process of the medium at the core of the series *untitled interactions*, is encoded in connection to the body and ancestor and the Manganian cybernetic continuum.

To add to this discussion, media and cultural theorist Mark N. B. Hansen's notion of the 'digital-facial-interface' is instructive. For Hansen (2003) the digital-facial-interface is an affective interfacing. That is, the technical mechanism for interfacing a digital interactive installation with the body is circumvented, by allowing the body to collaborate with the information presented by the interface, to create images. According to Hansen, the viewer/participant functions as a medium for the interface between the embodied human and digital media. This is activated through an experience catalyzed by the work, in the encounter with the digitally generated close-up of a face, but more so through the affective correlation in the viewer/participant (Hansen, 2003).

The 'observer/participant,' in the Manganian cybernetic continuum, in works such as the *untitled iteration series*, activates the work in a manner that is akin to the digital-facial-interface. They are the trigger (or control mechanism) and also are afforded the experience, the embodied relation of being faced by the artist's face, as they cause a disturbance

to the face. In another way the embodied relation disturbs the dis-embodied face. This mechanism is a similar strategy to the use of the grid as a divisive mechanism in my oil paintings. The role of the participant as active agent in generating, or even disturbing digital information is similar to the role of the Ariki in my speculative premise of the Mangaian continuum as a cybernetic system (see Chapter Four, p. 92). I have also suggested that the roles that Tohi and Laita play in their respective art practices have parallels to the Ariki, and this can be extended to the role that I also take on as artist, along with the data-generating observer/participant in the artworks that I situate here in the Mangaian cybernetic continuum (see Chapter Four, p. 101).

untitled, figures over ocean, in Oculus 2014

The viewer enters an open space. The headset disembodies them. A dark blue ocean and heavy sky greets them. In the distance an indefinable group of things can be seen. The viewer moves towards these things. Through this slow transition in space-time the things become recognisable.

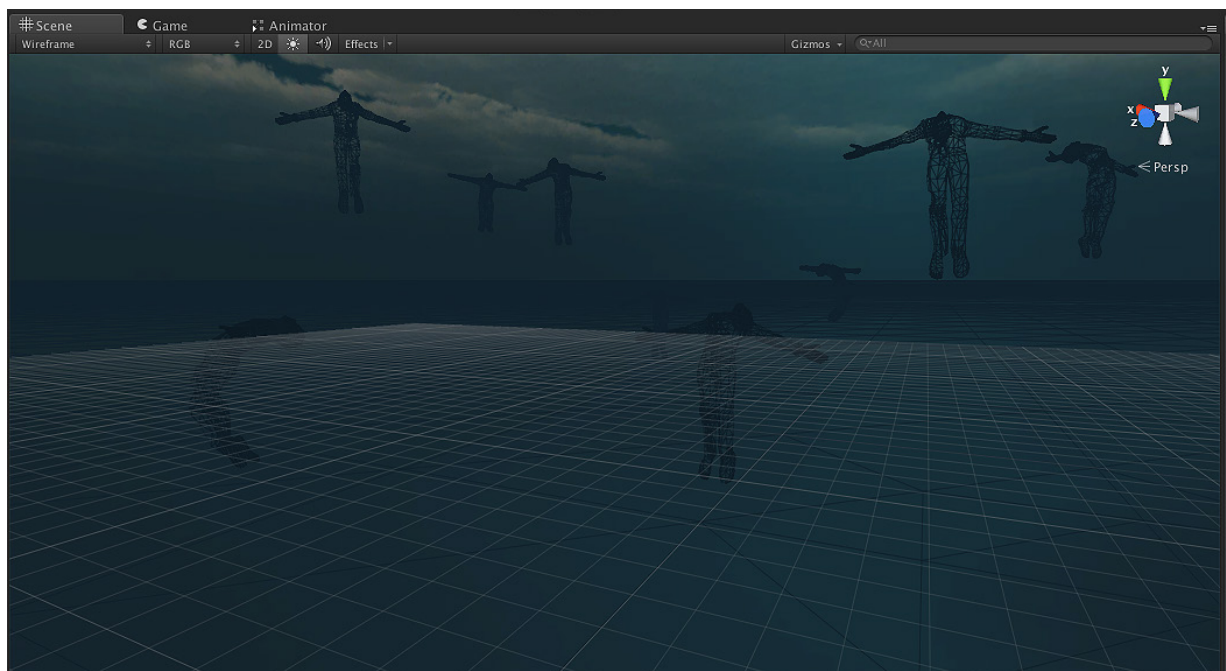


Figure 37. *untitled, figures over the ocean in Oculus.*
Wireframe of figures in Unity 3d (Tapuni, 2014).

They become figurative bodies. The animated figures are suspended in space. The speed of their inherent motion varies. Some movements are indecipherable by the moving avatar. There is a stillness that must be obtained by the viewer to comprehend the movement. Space and time seem endless. It is a space in which one meanders. The work has an ambiguity. The bodies have no face. The viewer feels like they are suspended. The soldier stands still; separate, waiting, at attention. It has no movement.

This is the most difficult work to discuss. It is somewhat out of place. In a sense, it is a completed work itself. That is, it is done. There is nothing I wish to add to it or change. It is out of place because it precedes the testing phases that by logic should occur first in the design of a practice. In actuality this did happen through playful iteration within the making space of the 3D digital world. That is, I played and tested to produce the work in, and of, itself. It is emblematic of the play element in practice. That is learning through doing, where elements of tacit knowledge seamlessly work in with my thinking processes.

untitled, figures over ocean in Oculus (2014) was generated to test an immersive virtual reality (VR) environment, in an effort to determine the suitability of the experience for this research project. The solitary use of the Oculus Rift through the custom eyewear is at odds to the open nature of an installation that offers a collective experience. However I remained open to its possibilities. Key technical priorities included: to determine the suitability of the format as a platform to exercise the practical component of the research; and to do this using the Oculus head mounted display that effectively immerses the solo participant. I reflect on the immersive experience, the notions of flux, doubling and the capacity for the Manganian cybernetic continuum to be present within this experience.

The Oculus Rift enables art to be experienced 'virtually'. Virtual Reality in the contemporary context generally refers to computer-generated immersive simulation through head mounted displays (HMD). It has its foundation in history of immersive images such as panoramic paintings of the nineteenth century and the stereoscope by Charles Wheatstone in 1838, which led to the view master by William Gruber in 1939. A stereoscope is a device for viewing two offset 2D images, one to the left the other to the right eye of the viewer.

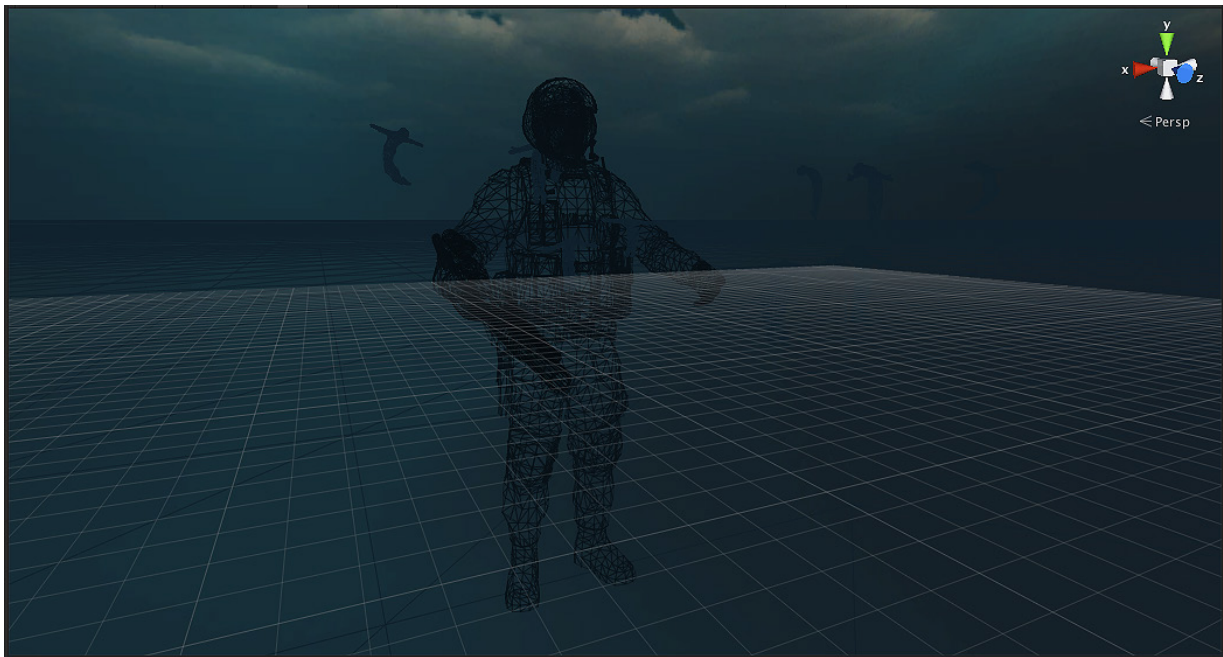


Figure 38. *untitled, figures over the ocean* in Oculus. Wireframe of soldier in Unity 3d (Tapuni, 2014).

These images are then combined in the brain to present one 3D image. This then led to a head mounted device with sound and eventually the incorporation of motion tracking⁷⁵.

Oculus Rift

I will take a moment to outline the technical description of the hardware and software of *untitled, figures over ocean*, to capture a particular moment in a rapidly transforming

⁷⁵ Retrieved from <http://www.vrs.org.uk/virtual-reality/history.html>, May 2016.

technological field. The Oculus Rift is a virtual reality headset developed and manufactured by American virtual reality technology company Oculus VR. The head-mounted device provides an immersive virtual reality experience of 3D simulations. The head set display has stereoscopic vision. I am using the Development Kit Two (DK2) version. The Oculus (SDK) allows integration into Unity 3d. This

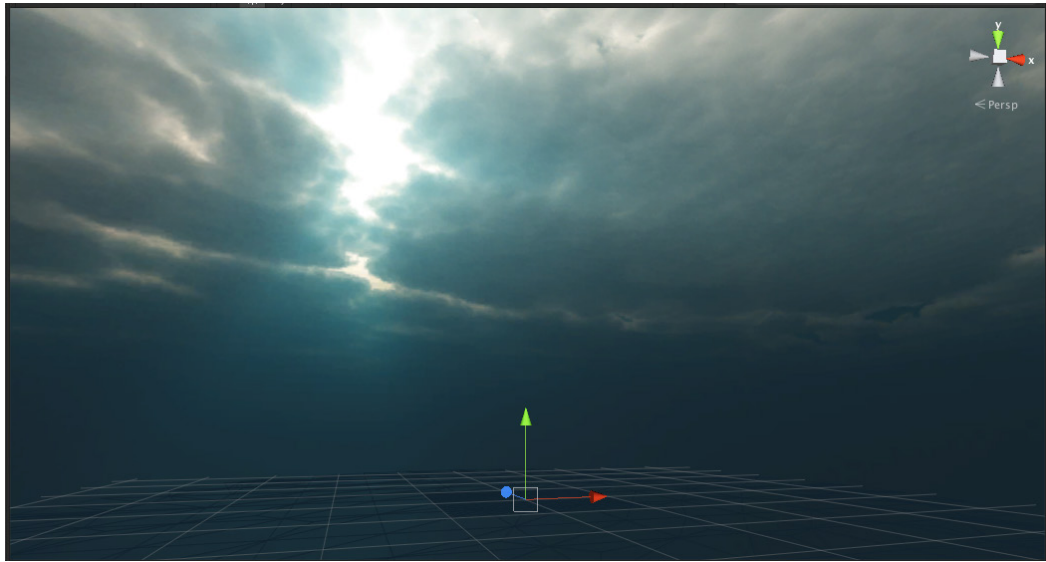


Figure 39. untitled, figures over the ocean in Oculus. Environment (skybox) in Unity 3d (Tapuni, 2014).

enables me to create VR content without VR-specific code or programming knowledge. For functional purpose, the work is set up in a computer with a screen, on a table top where interaction, by way of movement in the space, is controlled through the keyboard.

Unity 3d is a cross-platform game engine developed by Unity Technologies. A game engine is a software framework designed for the creation and development of video games for PC, consoles, mobile devices and websites. I have selected this engine as it enables the development of a digital world that renders 2D and 3D graphics, the detection and collision of objects, the implantation of sound, animation and cinematic moving images. All of these elements are experienced in real time.

My first test in Oculus was constructed using the Unity 3d gaming engine and free 3D assets⁷⁶ from the Unity asset store. The use here of game making tools (assets) differs from the proscribed usage. I create a contemplative space of suspension where one lingers, where games look to teach or entertain.

Work-flow

I begin by importing all the necessary assets into a Unity 3d project folder. This lays the foundation for easy workflow. I then create a minimal scene in Unity 3d. I create a flat terrain, add a basic water texture that simulates the ocean and a dark cloudy skybox. I darken the colour of the ocean in an attempt to minimize the game aesthetic and add motion to it. After a number of failed attempts with movement implementation, I placed the Oculus camera rig, which came with the Oculus SDK, into the scene. This resolved the issue and movement through the scene was activated. I applied this movement to an avatar, which is the viewer participants digital other. From here I added several figures into the scene. I placed them into space and then added animation to. Animation was done through the manipulation of the IK rig⁷⁷ on the figure and animator controllers. These movements were not pre-designed. I developed the movement of figures through a drawing process, which allowed freedom to experiment. The audience could navigate through space using a keyboard.

Experience

untitled, figures over ocean in Oculus is a 'no place'. It is an exterior world that has an interior-like, internal quality. The sky and horizon line bare semblance to some

⁷⁶ An asset is a form of media content, in this case I used 3D figurative models.

⁷⁷ This is a tool that lets the animator control joint movement.



Figure 40. *untitled*, Oil on canvas (Tapuni, 2005).

of my paintings. *untitled, oil on canvas* (circa 2005) (see Figure 40) is a work in the black and white series I constructed for the solo exhibition *subliminal shots* (2005) (discussed below). The place in the painting is a no place, a seascape with a horizon line. In the no place is a figure, an ape, which is grounded by the terrain in a walk-like motion.

Like this, *untitled, figures over ocean* is located in a no place, a seascape with a horizon line. However it is the viewer who floats through the space. The difference being where the ape walks along, and is grounded by, the terrain, the viewer in the Oculus Rift is suspended over water. There is no land or terrain. The viewer walks over water. The feeling of suspension is further articulated by the moving, revolving, rotating figures that are placed above eye level.

The figures locate the viewer in space, in a continuum. Should the viewer move beyond the figures to explore the space beyond, on a macro level they are moving; however the viewer does not experience the motion, movement. Their presence feels static, disconnected. In a way one locates themselves, in reference, in continuum to the transitioning bodies.

The virtual reality experience is an immersive transportation to an alternate space-time. This enfolds the multiplicity in the Manganian cybernetic continuum through the doubling and coupling of form. That is, the microcosm in the digital space, in which the observer/participant is present, and is overlaid by the macrocosm of physical world they are sited in.

I was unsure whether a fully immersive space allowed a connection in continuum between the digital and physical space. However in my experience I was aware of my body that was in physical space, yet it had more presence, through its absence, in the digital space.

In some ways this is similar to Polyani's proximal and distal terms (Chapter One, p.34). I was aware of that which was close to me by attending to that which was away from me. I understood my physical function, its freedom and limitation within the digital space, by cruising through and experiencing the world through the keyboard interface.

The observer/participant activates and determines the work. The work is dependent on the way in which they encounter, negotiate and interact with the space. They are in control of creating an experience, and creating knowledge through experience.

The immersive experience in Unity 3d and the Oculus Rift offer multiple possibilities for art production and an open site to discuss the cybernetic continuum. However there were some aspects that needed further consideration. There is room here to develop qualities of doubling and flux in the appearance of figures and some interactive components, preferably without the keyboard. These explorations I attend to in the next section.

testing model: manchurian in mind (2015)

In Chapter one, the methodology section of this exegesis, I outlined Polanyi's proximal and distal terms that assist the transfer of intuitive knowledge, tacit knowledge, to become explicit. Through a reflection on practice, the testing model *manchurian in mind* (2015) appears to illustrate this process in the making. I will discuss how this point functions here.

The key aesthetic concern in my practice was to elicit a sense of otherness in a three dimensional digital space. The sense of something emerging from some other space aligned itself to *file corrupted* (2010) (see introduction section,

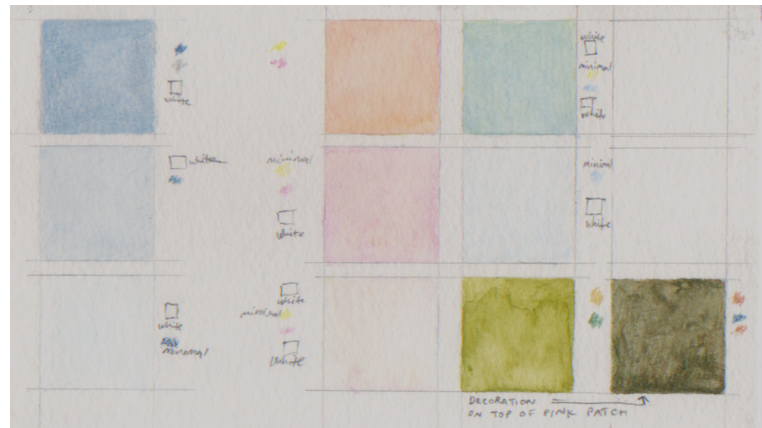


Figure 41. Drawing, colour palette. Based on the film *Tinker, Tailor, Soldier, Spy* (Tapuni, 2015).

p.11). The slow revealing distorted digital face emerged from the concrete wall from which it was projected. These transgressed moments were a balance between light and dark. This is a common theme that recurs in my practice, which folds in continuum.

I see this quality as a visual language that aligns itself in a sense to the emergent quality that the notion of flux (from the material to the immaterial (matter and energy) and the doubling and coupling of form) may have. However these aesthetic qualities I attempted to make in the digital space were not literal or even symbolic representations

of what these things are. That is, my work did not (does not) illustrate the narratives of our Manganian cosmology, primordial matter or atua.



Figure 42. Light and chair drawings, sketching through ideas (Tapuni, 2015).



Figure 43. Drawing, Tv Element for the "torture" room (Tapuni, 2015).

Furthermore these values are aligned for the speculative purposes of this research, to enable the formulation of the concept of the Manganian cybernetic continuum through practice. This alignment did not (does not) determine complete meaning for these values in my art production. There is always multiplicity in my work and its complex nature makes for an open-ended interpretation.

To develop the visual language of otherness in a digital space I had to place my attention outside these concerns. By this I mean I ignored the concerns of how to produce a sense of otherness in the three dimensional digital space, how the Manganian continuum would map with the cybernetic and eventually how the Manganian cybernetic continuum would manifest the interface of digital and physical space.

Instead I focused on learning key techniques and outlining a workflow required to produce a three dimensional space in the gaming engine Unity 3d. This is akin to Polanyi's focus on the distal term, that which is away from us. That is,

while I focused on the technical production, the distal, the awareness of solution to the queries I had, the proximal, came to the fore. That is the intuitive aspects of my creative practice came to the fore to resolve the productive issues I had.

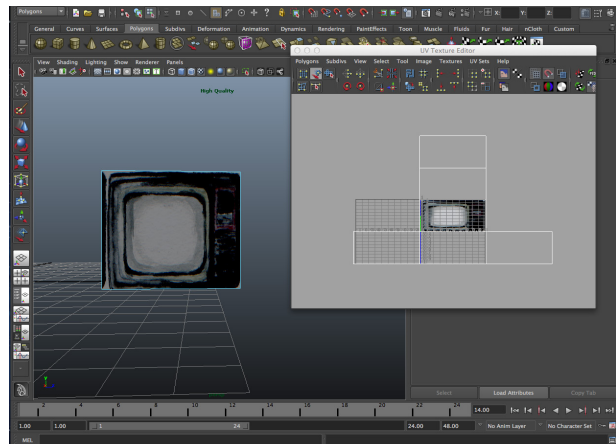


Figure 44. Drawing of a TV made with colour pencils, scanned into the computer and attached as a texture to a mesh in Maya (Tapuni, 2015)

I was (am) drawn to the film depiction of unease of the post-war era. This in part is sparked by research I conducted on 20th century cybernetics. Images of scientists in labs conducting experiments, hovering over typewriters, a mix between, quirky, potty, curious, serious and dangerous thinkers. I was also influenced by films like the *Manchurian candidate* (1962) directed by John Frankenheimer, where American soldiers were being brainwashed, and *Tinker, Tailor, Soldier, Spy* (2011) directed by Tomas Alfredson, a film about cold war espionage and the infiltration of the British Intelligence Service by a Russian mole.

manchurian in mind (2015) is loosely based on the premise of recreating a sense of unease. I set out to replicate a stylized movie set where brainwashing would occur. This in a way is similar to the one liner series mentioned above, an obvious play on a statement. In this case a reference to a couple of movies. I stress that I did not focus, consider, channel the psychological, physical or emotional impact of

these environments as real spaces experienced by people, in any form or context of imprisonment or capture. It was purely an exercise in fictional set decorating in a three dimensional digital space.

Exploring texture through the interrogation room

An avatar is seated on a chair in front of the TV, unable to move. It only has limited head movement as if restrained or forced. A video will play on loop from a TV in a room. I draw a 70's style TV, a chair and a light. All but the TV are elements that are in the room that the viewer is not able to clearly see.

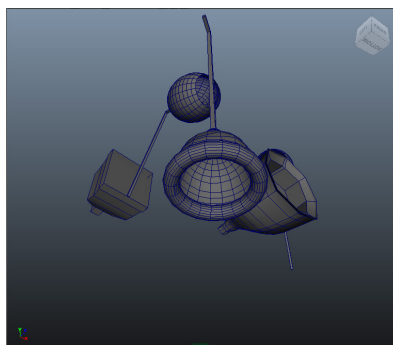


Figure 45. Light and fixture models in Maya, (Tapuni, 2015).

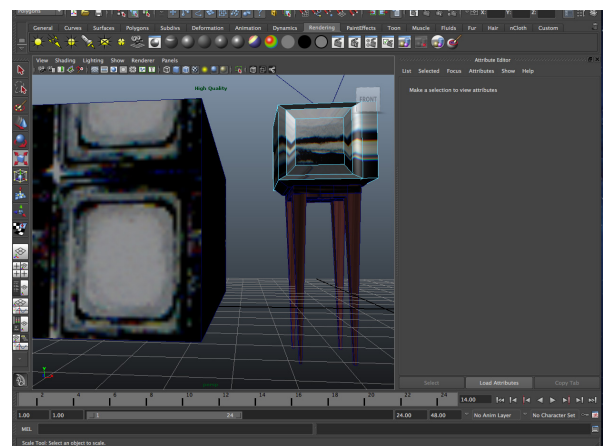


Figure 46. Drawing attached to TV mesh (Tapuni, 2015).

To begin the technical exercise in *manchurian in mind* (2015) I began creating textures for the walls and avatar skins. I drew on the colour palate of a room in the film *Tinker, Tailor, Soldier, Spy* in which the character Jim Prideaux played by actor Mark Strong, is being tortured.

This extraction of information sought to decipher the visual qualities used to create the unease. The film uses strategies other than the aesthetic palette like slow moving dolly tracking and repetitive sound, as well as the intensity of

the actor. The room itself is brightly lit however there is vacancy through the use of pastel colours.

I drew various TVs using coloured pencil and wash (see Figure 43) to replicate the era and drew various backgrounds to help visualise a room. The medium offered speed to the process of drawing out an idea. I had to consider how to simulate the effect of grime to contrast the plastic aesthetic in the game engine space.

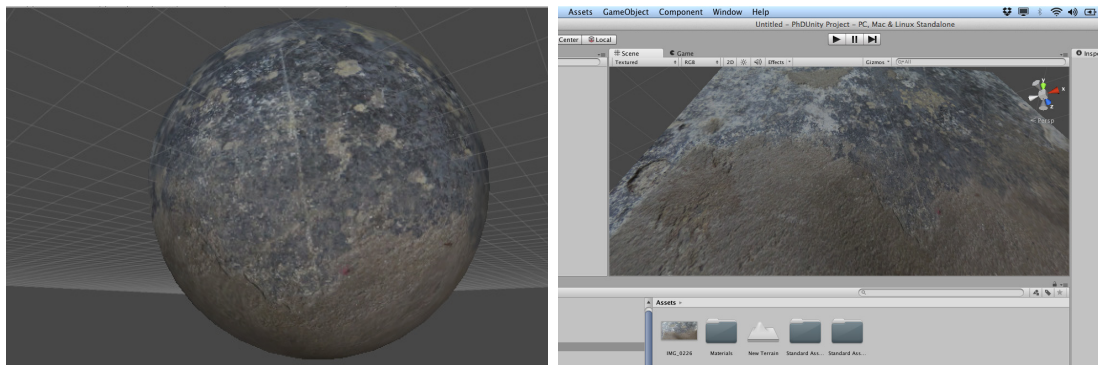


Figure 47. Photograph of concrete as texture attached to mesh (Tapuni, 2015).

This led to the capture of various textures from the physical environment through digital photography(see Figure 47). I took images of concrete, dirt and leather as base textures to work from. They were used in the wall and chair. Initial adjustments such as image cropping, light and colour levels were made in the software Adobe Photoshop⁷⁸. I added filters and brush stroke effects to simulate grime and shadow. These were then imported into Unity 3d so I could analyse the visual effect between a direct import of texture taken from a photograph and the images I altered in Photoshop (see Figure 48).

As a result both processes for texture making have value. Their use is dependent on the visual effect one is after and more importantly how it is attached to the mesh⁷⁹. My testing best practice suggests the method of making and

⁷⁸ Photo editing software

⁷⁹ Is the surface that defines a 3D object in computer graphics

applying texture to a model is best done through the use of UV mapping⁸⁰ using UV snapshot, migrating this to Photoshop, applying the effects and translating this back into unity. This form of texture application allows for more targeted and accurate texturing of mesh models.

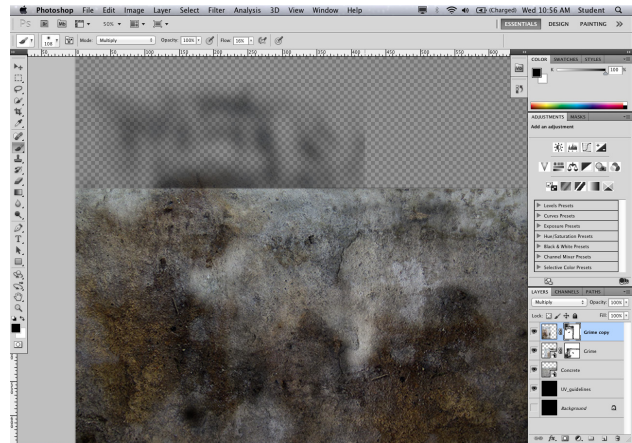


Figure 48. Painting texture in Photoshop (Tapuni, 2015).

From here I looked to create an avatar. The intention was to site the viewer in the position of the avatar. That is the avatar was a first person experience. However I thought it was important for discovery through learning that I complete an avatar from mesh creation, importation and mesh texturing.

Models MakeHuman

In previous works I have used Maya for model making; however within this project I have explored Makehuman (see Figure 49). It is open source software where one can configure photorealistic 3D humanoids. The selection of body and facial features are made by sliders that push or pull various elements. As mentioned above, my practice has a propensity to draw on ape figures as in *monkey man* (2008)

⁸⁰ A 3D modeling process of attaching a 2D image to the surface of a 3D object. This is how one applies texture (texture mapping) to an object.

and file corrupted (2009).

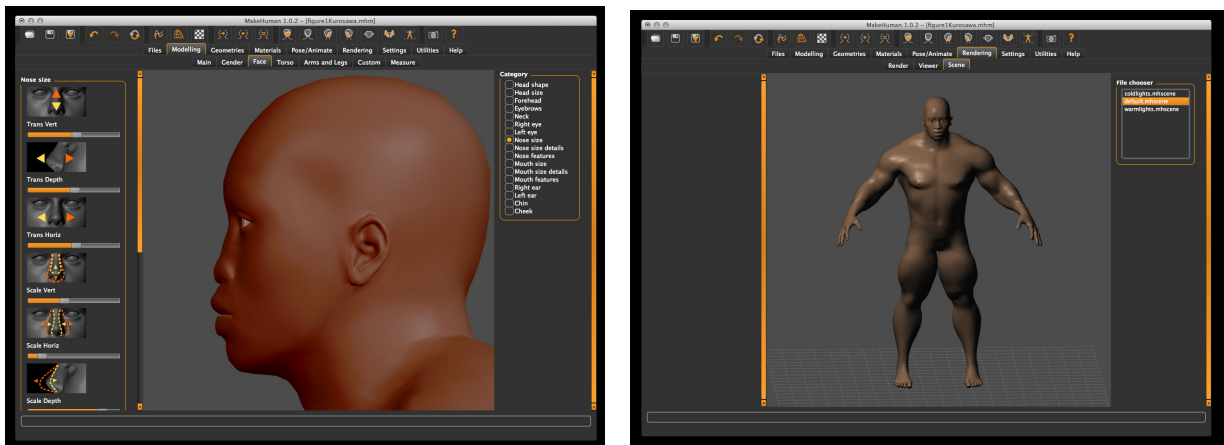


Figure 49. MakeHuman figure production, profile and bind pose (Tapuni, 2015).

So too here:

I adjusted the figure to be at extremes, a quick succession of extremes, an old fig, a baby, a black figure, chocolate, obese staving, tall in stature, protruding chin, pushed back forehead, prominent brow, flat nose, hook...

The ease of creation makes for a quick succession of output. These models can be exported with a skeleton for rigging⁸¹. I have preferred to create my own rigs in Maya as I have had issues with the rigs exported from MakeHuman. I have had better control with animation through the creation of Maya IK handles.

I imported the figure into manchurian in mind. Placed it in a fixed seating position, in front of the TV, with the idea the figure (the viewer) would only have head movement. I added movement to its head, a slow moving turn ... *I began to make more, beyond the confinements of the room, I began to play... I wanted more movement, slow walking figures,*

⁸¹ This is a skeleton struture, similar to bones and joints in a person, that allows the animator to control movement in a 3D model.

at varying distances, in unison, marching, emerging then receding into the distance and space ... kurosawa's throne of blood ...

Somewhere in this space the proximal appeared. It occurred between making the MakeHuman model, while making human the ape-like figure by giving it animation, while it sat in a room, on a seat, with a cobbled together television with pencil scribbled texture. I added motion, movement to the avatar's⁸² head. It was the motion attached to the figure that triggered a way in which the other could appear in digital space. Movement is becoming an action from something to something.

This is alike the pulsating rhythm of nature in Mariko Mori's *Tom Na H-iu* (2006). The fog is comparable to the darkness of the room, that from where things emerge. Creating and experiencing motion through the process of making in the digital world, opened a space in practice, where the inherent (distal) and intuitive (proximal) came to the fore, to become explicit knowledge.

In the frame of the Manganian cybernetic continuum this testing model serves as a space, location, *va* (intervening gap), for *ata* (to make visible the invisible) to occur. That is the knowledge I sought (to articulate the means of otherness in the digital space of the gaming environment) was hidden information within this testing portal of manchuian in mind. It was through the circularity of exchange of making (creating images, textures colours and motion) in practice, the flux between inherent, intuitive and explicit means in which art production that led to strategies that illustrated a sense of otherness I sought. Here information was a doubling; in its form of absence, the unknown and hidden "presence" or pre-sense, and its here-ness, becoming thing, knowledge, meaning.

⁸² Figure representing a person in a computer game

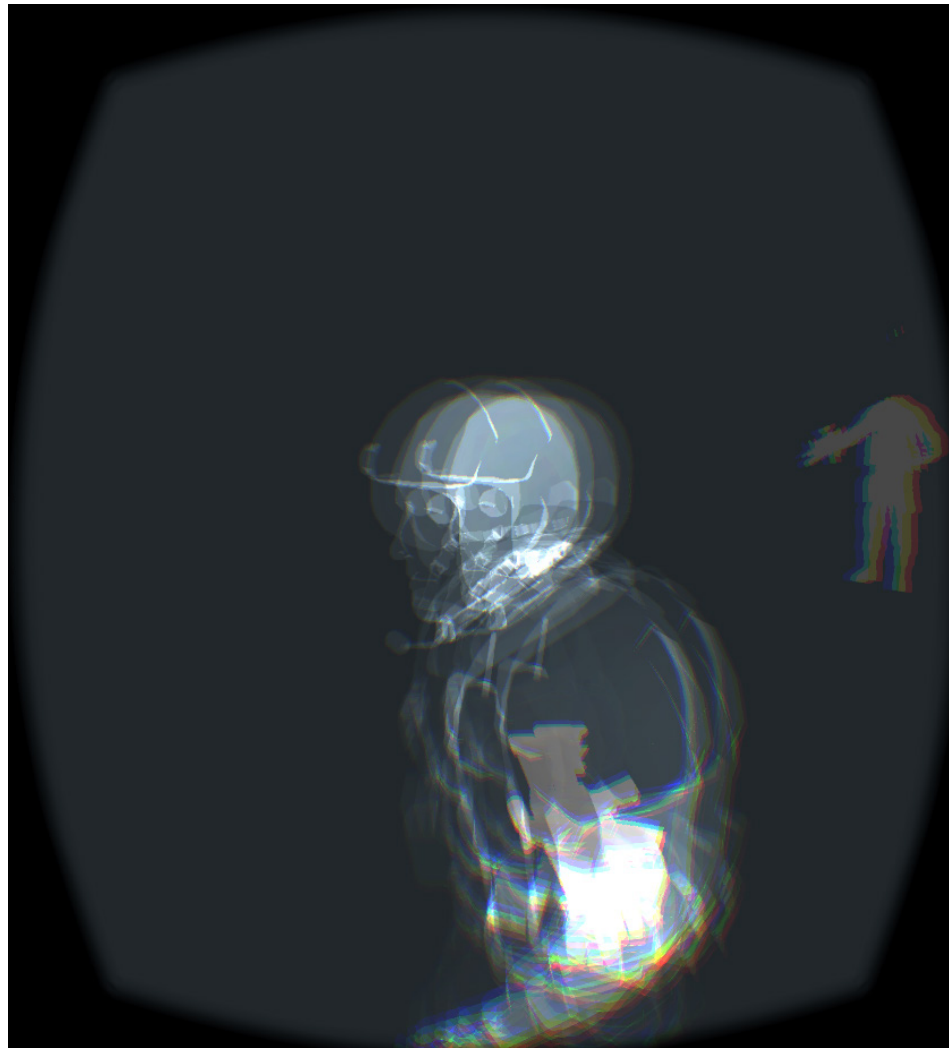


Figure 50. *kurosawa walk through* (Tapuni, 2015).

The opened nature of this creative space flattens time, articulating connection of all things. I transferred these means of digital otherness to the portal of *kurosawa*. The next section discusses the slow reveal.

Testing model: kurosawa

There is a blanket of dark grey that I cannot escape. In the distance a light emerges slowly from what I now identify as fog. I move towards it and it begins to reveal itself. It is as a doubled ghostly figure, transparent white/blue matter

defined by accents of white light. It is a soldier of some kind. It walks towards and through me in a jerky, glitch-like manner. It is as if it is attempting to separate from itself. I move myself quickly out of the way and sway my head around to look at the moving soldier from a different angle as he now walks away from me in a linear fashion. I am startled, a group of large apes march in unison above my head. They are heavy black figures that walk faster than I do, I cannot keep up, I now see nothing, I have no location or locators, I am lost, there is a blanket of grey.

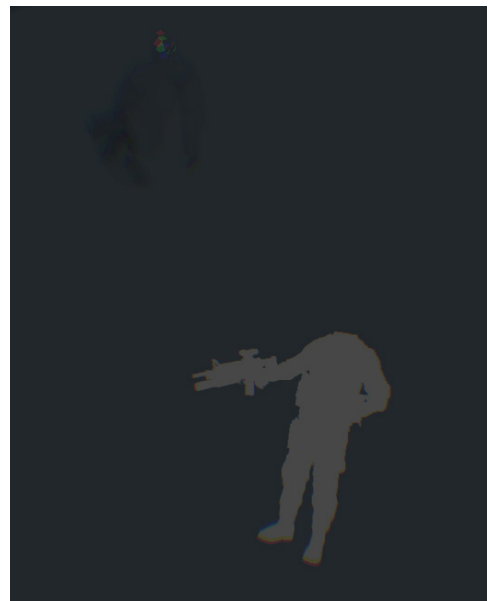


Figure 51. *kurosawa* walk through (Tapuni, 2015).

I have discussed strategies in my work where parts are hidden as in my grid series portraits and the slow reveal of the face in the work *file corrupted*. *kurosawa* is an explorative model of this nature. It has qualities that are akin to a solo exhibition I had called *subliminal shots* (2005), an installation in Auckland's Art Station that also drew on the slow reveal.

In *subliminal shots* I partially hid a series of black and white paintings into various piles of stacked cardboard boxes. The room was lit with one spotlight to purposely limit visibility. This in turn made it difficult to navigate the room and encounter the work on entry. The low light levels

meant the viewers' eyes had to adjust to the setting of the room. This took time. Thus while the viewers negotiated themselves through the maze of cardboard their eyes slowly adjusted so they were able to see. Over time they could see more detail in the installation as a whole and the paintings embedded into the cardboard maze.

In the same way, *kurosawa* is set in a low lit space in which the viewer must navigate their way around a space with very little offered to negotiate this. They may get a glimpse of something moving past them, through them or away from them. To partially hide things in the 3D digital space I created a dark environment and tested the quality of the fog component in Unity 3d. The effect of this slow reveal is similar to *ata*, the invisible becoming visible, the doubling of information to couple hidden and guarded parts of knowledge, for the Mangaian cybernetic system of exchange occur.

I gave the world a dark background and made the fog the same colour. This way they appeared seamless. The space is an open flat terrain not bound by walls or high mountains. Such elements can be used as strategies to limit the range in which the viewer can roam; however I have left the space open. This would enable animations like forward walking cycles to continue beyond the area of the terrain I set. This would also mean, should the viewer follow, they could potentially fall off the terrain, at the end of the world I created. This free fall in space would break viewer control.

Testing moving image

I set in place a series of components that would be discovered by the viewer. First I examine moving image importation then figurative animations. To test the quality of moving

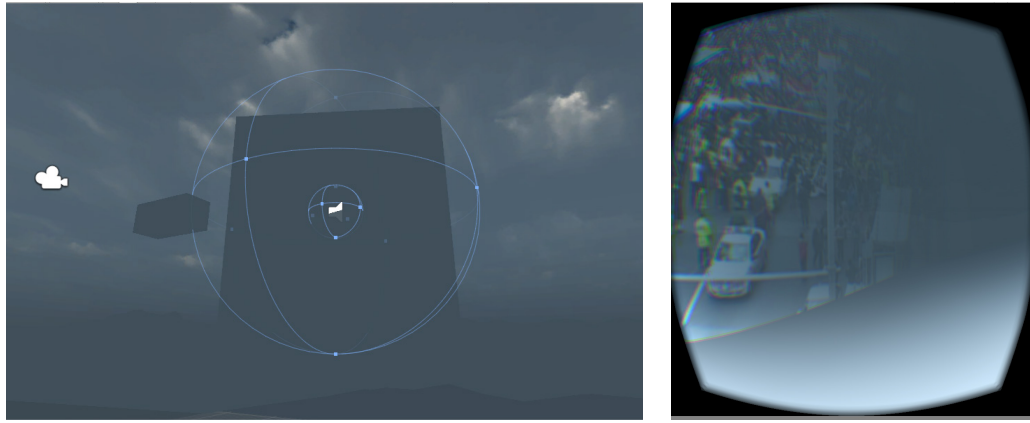


Figure 52. Video in fog test. The image on the left shows the video mesh at a distance where the video is not seen. The right, close proximity that reveals the video (Tapuni, 2015).

image works, documents the 'real world', in the 3D digital emergent space of *kurosawa* I imported a moving image work *gathering* (2012) into the site (see Figure 52). Shot with DV cassette tape, the moving image work itself documented the motion of people gathering to stage a hikoi, on Queen Street in Auckland. This work was chosen because it expressively captures the physical world as a documented event. Once digitized through final cut pro, it was sped up in post-production. As a visual aid, in the digital space, it was used to test the proximity in which the moving image, cloaked by fog, is revealed to the first person controller.

The video image in the digital space appeared as a grey box. As the viewer got closer to the grey box the moving image was revealed. The proximity of this relationship was very close. In effect only a small segment of the work could be seen and the work is never experienced as a whole. This was the result of high fog density. Lowering the density would allow for some more transparency, thereby revealing the video to the viewer earlier.

Though this test itself was successful there was a disjunction between the 'real world' aesthetic of the video content and the environment built. It is a very blunt moment, a clumsy statement that placed the physical space into the digital

by way of transforming the analogue data to digital data, by transforming the format of the information to reconstitute it into a digital world.

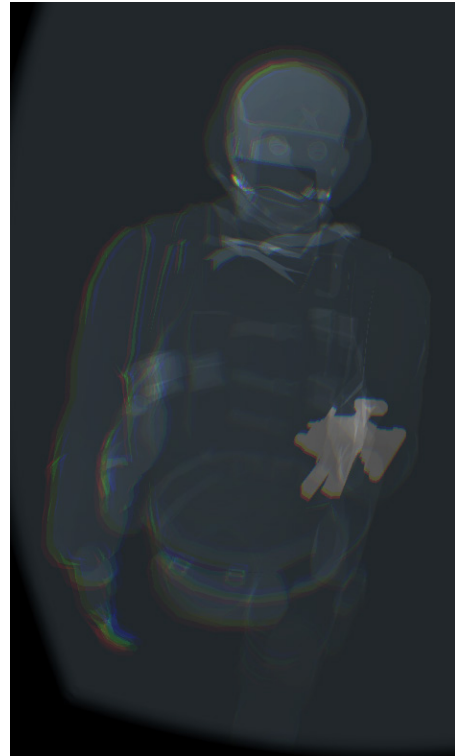


Figure 53. kurosawa walk through
(Tapuni, 2015).

This direct reflection of the physical into the digital appears more as a disconnected object rather than an integral part of a system that this research seeks. This identified two focal points that I will subsequently discuss. That is the use of 3D models and associated animations to relay emergence and recession and the use of tracking to accrue data in the physical world that affects the digital world.

3D modelling and animation

I placed in an ape figure imported from *manchurian in mind* (2015) and a soldier figure. Both had slow forward walk animations attached to them, with different speeds. This was then further offset by the slightly faster speed of

the viewer. I placed the ape above eye level and several metres away from the starting position of the viewer. This meant that over time, should the viewer be in the right position, the viewer would encounter the ape-like figure as it slowly emerged and regressed into space. The slow reveal is at work in the emergence of figures (animations) in the scene, as well as the viewer/participant's exploration of the digital.

The soldier was placed slightly below the eye level of the viewer. The mesh texture rendered the figure transparent, ghost-like. A doubling of the figure augmented the ghost-like apparition. That is, I made a replica of the mesh and grouped them together. This doubling and coupling of form draws in the relation of flux discussed in Chapter Three. This is done by maintaining the individual values of each figure and allowing their difference to permeate through their grouping, as in offsetting their motion. This further aligned with the notion of the multiplicity of things and also allowed difference through specificity.

The only interactive component for the viewer within this set up is the ability to move around the space. By way of the Manganian cybernetic continuum the observer here, in a sense, appears passive. That is, the viewer has no obvious control over the conditions of the environment or the activation of the animations. To put it clearly, the viewer could not cause obvious change to the environment or the animated figures. However the viewer was an observer, observing and experiencing the world. To activate this world, to move through this world, to trigger animations, there is recursion at play here on a meta-level in software design. That is the input mechanism of the keyboard and mouse drive the intent of the viewer, through haptic action, by the means of software.

To extend the users input I have tested the use of camera tracking to accrue data in the physical world that will translate the position of the viewer in the digital space. This is similar to the use of web camera tracking in the *untitled interaction series* discussed above. However these tests allow first person experience. Two forms of experience are tested here: the immersive experience of the Oculus and the digital world experienced through projection.

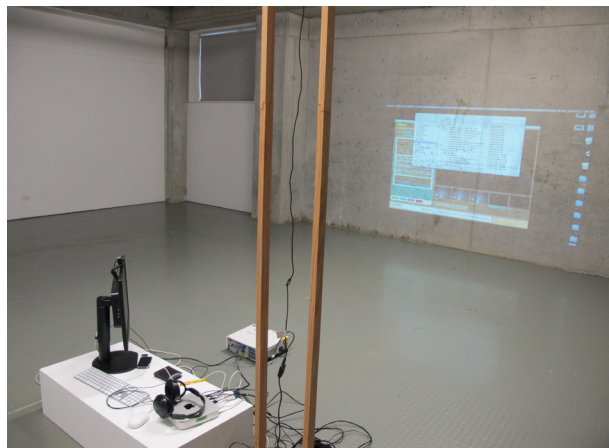


Figure 54. AUT Postgraduate Test Space real time tracking exploration (Tapuni, 2016).

Tracking data in Unity 3d

There are numerous ways to map the tracking of a person's movement in the physical world into Unity 3d. During the scope of this research I had looked at OpenCv integration which I did not use as there was a high level of technical capability needed that went beyond my present skill level; Kinect camera integration - ugly, and recently established high end capability in AUT Mocap suite. The high-end suite offers greater capability for interaction. However sitting a work in there becomes loaded with the surrounding environment that is a very technology loaded space that almost appears as a waiting dock or the backstage of a theatre. For the scope of this test I used an open source tracking software

TSPS⁸³ and a unity-integrated package of which the example project was created by James George.

The TSPS integrated package comes with a pre-made unity scene which has a flat terrain with a square in it. The square demarcates a zone that reflects the region in the



Figure 55. AUT Postgraduate Test Space Tracking (Tapuni, 2016).

physical space that picks up the data that is tracked. I then changed a few elements in this scene, the colour of the ground mesh, imported an avatar (an ape figure) with an animation attached to it and a still figure (a soldier).

I placed the camera from the integrated package on to an avatar in the digital space. The avatar will reflect the movement data of a person walking in the physical space with the image encountered via the camera. It is a sense of

⁸³ Cross platform toolkit for tracking people

mapping between the digital and a physical space. This is a crucial element for the circularity of exchange in the Manganian cybernetic continuum to occur at the interface of digital and physical environments. This was tested using both the Oculus Rift headset and digital projection.

The tracking test works in both the Oculus and as a projection. However the Oculus allows for a more immersed feeling. The



Figure 56. AUT Postgraduate Test Space Tracking (Tapuni, 2016).

sense of immersion coupled with the ability to move through the space, elicits curiosity; whereas with the projection (which only allows the viewer/ participant to move forward, back, left, right) the inability to turn around in the digital space or really lean into objects offers a limited experience in comparison.



Figure 57. AUT Postgraduate Test Space Tracking series (Tapuni, 2016).

These observations were made with quite a rudimentary setup with many issues: such as the web camera calibration settings are very particular. The camera picks up a lot of incidental light from surfaces, so the space needs to have controlled lighting. In my testing the web camera would also pick up on light off clothing and hair. This would sometimes split one form into two. What this entails is that the avatar's vision, what the viewer/participant sees, jumps around and in both the Oculus and projection experience, within these tests, causes a disjunctive experience. This does not suit what I intend on achieving here but the disjunction may come in handy down the road.

In relation to recursive strategies, this form of input via the web camera, is similar to that discussed above. Furthermore this form of user input has bearings on the Mangaian

cybernetic continuum through the notion of multiplicity. This can be considered through the translation of tracking between the physical world and digital work; that is, this data set in principle is the same but different.

The porosity of information in the Mangaian cybernetic continuum in a sense can be related to the dropping of data in the transfer of information from the camera to the software. As a completed work this is not ideal; however a philosophical reading of this may be interesting. However this dropping did highlight the need for solution.

Testing the final installation (untitled) in darkness

Earlier in this chapter I briefly touched on the use of darkness in my practice as a mechanism for emergence to occur, as in the exhibition *subliminal shots* (2005) and *kurosawa* (2015). Within the context of this project I have tested



Figure 58. *untitled interaction [3]* installed in AUT Performance space (Tapuni, 2016).

the works *untitled interaction [no. 3]* (2014), *untitled, figures over ocean* (2014) and *kurosawa* (2015) in the black box space of AUT University's performance space. This drew on the use of this strategy in an installation context.

The performance space is a theatre type space without a proscenium arch. It is a very internal, contained space. All works were projected on to the large black felt curtains in the space. This gave the light of the digital projection a diffused quality that suited each piece. The mode of placing these in such a considered means with low-level lighting shifted the work beyond the gaming aesthetic.

One spotlight was set up so it could detect the viewer. It was a clear signal in the space that people would perhaps walk over to. It had an ambivalent sense of meaning. *Do I interact or not? Does it have any purpose?* This light space was used as a means to trigger the recursive strategy on a functional and conceptual level. To do so would change the work. The irony of this is that, on a conceptual level, this sense of disturbance plays out through a Christian lens, the division, darkness as savagery/light as enlightened. In this strategy one steps into the light and disturbs the light in the dark. You affect change. However if you strip away that layer and conceive that both dimensions have powerful qualities that are strengthened by placing them in situ with each other you have an alternate reading. What is presented is becoming a relation to the work in a Mangaian cybernetic continuum.

This further presents itself here through interactivity; the circularity of exchange, the flux in the Mangaian cybernetic continuum, between the viewer/participant and the digital work. The mechanism of the slow reveal is the doubling/coupling of information, as it becomes visible, *ata*. It is in a sense, knowledge transfer, from what is hidden to what becomes known.



Figure 59. *untitled interaction [3]*, installed in AUT Performance space (Tapuni, 2016).

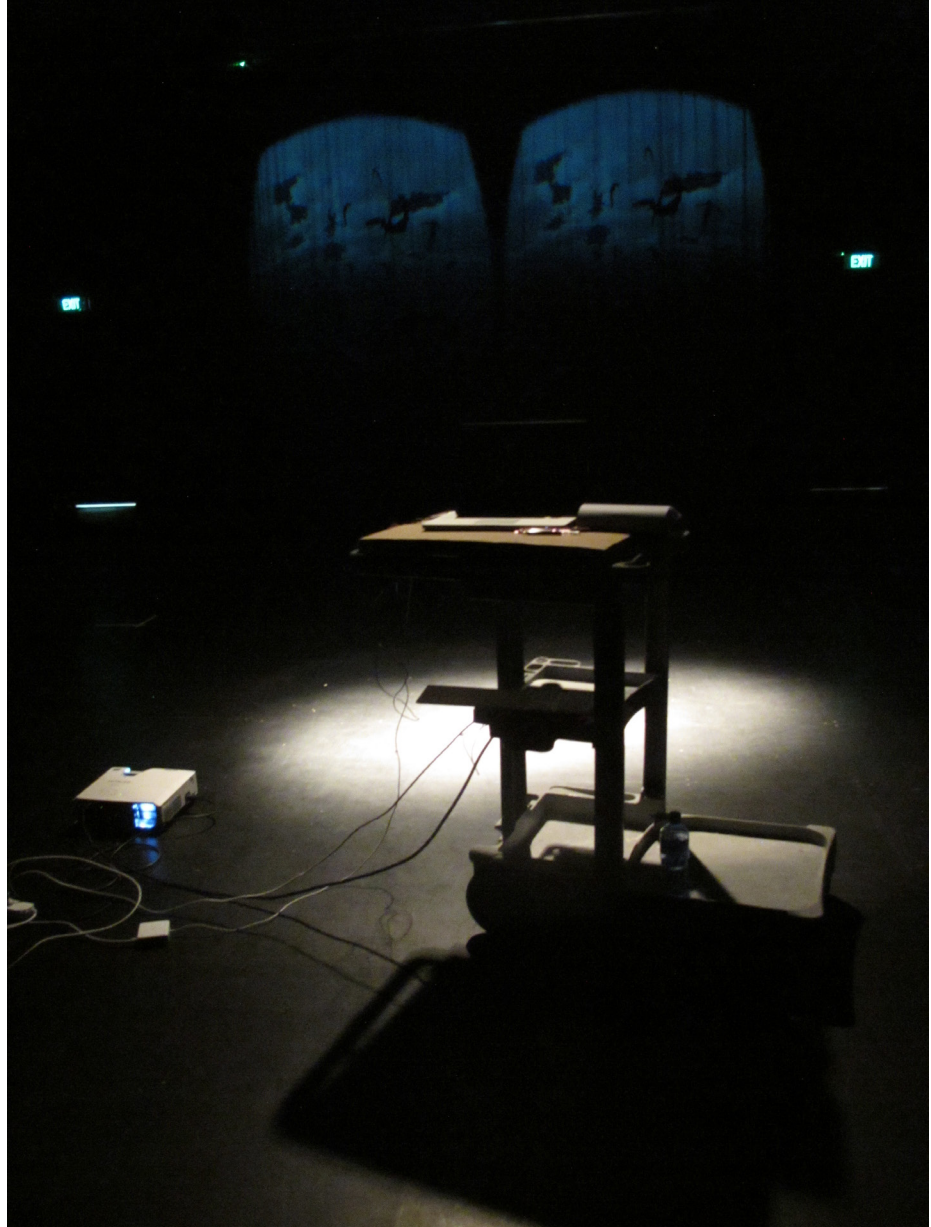


Figure 60. untitled, figures over ocean in Oculus, installation testing in AUT Performance space (Tapuni, 2016).



Figure 61. untitled, figures over ocean in Oculus, close-up. Installed in AUT Performance space (Tapuni, 2016).



Figure 62. kurosawa, installed in AUT Performance space (Tapuni, 2016).



Figure 63. kurosawa close-up. Installed in AUT Performance space (Tapuni, 2016).



Figure 64. kurosawa close-up. Installed in AUT Performance space (Tapuni, 2016).

This occurs in the experience of the observer/viewer/participant. The doubling/coupling of form is also reflected in the aesthetic quality in the digital avatars, made through the art production process.

Placed in the darkness the worlds seem to collapse. Perhaps the work interfaces a Vā, the interleaving gap where time and space is flattened. That is there is no longer a clear separation between the digital and physical environments (their interface), space nor time. One is folded onto, and into, the other.

Summary

This chapter presented the way in which I create work. This system is also the way in which I create knowledge through resolving questions through the use of proximal and distal terms. There are two streams at work here: one projection - the other immersion; one that clearly couples the digital with the physical - the other seamless immersion. Both consider the observer as observer and part of the system as their participation triggers both experiences. Motion and darkness are important and so are strategies to hide and reveal things. The schemes revealed through these tests work towards an understanding of the key notions outlined in this thesis. However I maintain that this only gives insight in what is to come in the practice and what will be experienced in exhibition that accumulates this knowledge. It is like the grey blanket that covers in the *kurosawa* work, it is potential that lies and waits, it is eminent, becoming, the circularity of exchange, flux that is in multiplicity in the self as other tēta'i.

Conclusion

Summary of thesis

This thesis has contextualised a process of making implicit knowledge, explicit. The circulation of inherent and explicit knowledge, cycled and recycled through recursive strategies, has allowed depth and progression between iterations of work to accrue. So too did the silent periods. These are moments that happen before *ata*. The porous moments where the body understands, through its connection to self in other, that the salient moments are about to become.

Exegesis summary

Structuring the flow of content in the exegesis to meet academic inquiry, in a clear and concise manner, had been a challenge. The multiple connecting paths within this thesis, made the demarcations between context, methodology, critical ideas and practice, difficult to make. Therefore I approached the exegesis in a manner where I folded these interrelations together.

The first section of the thesis provided a brief introduction to the multiple positioning of the Manganian continuum in the research project: as the central methodological frame, a method, and a key concept in practice-led art making. The concepts of interconnection and genealogy were discussed as fundamental to Oceanic peoples. In addition, I have argued for cosmological interconnection and genealogy as research methods. I drew on Ani Mikaere's (2011) discussion of interconnection and interdependence as a binding agent and *whakapapa* as a methodological tool for Māori. Through

the work of Albert Refiti (2013) I touched on the sacred space of interconnection through the Samoan concept of Vā that allows time, entities, and space to collapse. This discussion prompted an exploration of Manganian terms that offered a parallel, 'akapapa (arrange, dictate, tell) and tu'i (write, draw, adorn). These became relational terms, experiences, in connecting self to other. Refiti's notion of tā was connected to 'akapapa as a recursive relationship, where one determined the other through the motion of tu'i, in practice. This relationship allowed for knowledge creation to occur. Manulani Aluli Meyer's sameness and difference, where 'we see each other and see ourselves' (Meyer, 2011, p.11) offered insights to how I considered the self in the other, in the difference and sameness of ancestor. I called on two terms to distinguish the concepts of other; tēta'i (certain one, another, other) and kē (different, other, wrong). Out of these terms, a sense of multiplicity emerged as a crucial element in the project.

The second section offered a more in-depth discussion of how the continuum manifested in practice and how this further supported knowledge creation. I discussed the notion of practice as functioning beyond art practice and continuum extending beyond its use in practice and this project. This reflected the way in which I understood the world, created knowledge and made meaning. Circularity was considered a strategy in creative production. This was relayed in the recycling of imagery and content and concepts in art production. I discussed the way in which continuum was implicit in practice and that this was a difficult process to verbalise, or to be made explicit. As a solution I drew on Polanyi's method of indwelling, making intuitive knowledge (tacit knowledge) explicit through the use of his terminology for the proximal and distal. This process was also used to outline a strategy to reconcile inherent understanding of the Manganian continuum with ethno-historic narratives written through the colonial lens of Gill (1876)

and Te Rangi Hiroa (1934), to make my inherent understandings of Manganian continuum, explicit.

The exegesis then examined the context in which the ethno-historic research, by Gill and Hiroa, was conducted as a way to distinguish a mode of indigenous seeing and colonial looking. It used recent research on the subject matter by historian Michael J. P. Reilly to bring in contemporary critique. The research drew on this analysis as a way to determine the project's position, the place of tū, within the contested colonial frameworks at play in the documents.

Through a close reading of particular passages of these ethno-historic texts of Gill, Te Rangi Hiroa and Reilly I have identified a Manganian continuum, through Mangania's cosmological narrative. There was an emphasis on unfolding the Manganian continuum by recounting the Manganian cosmogony from primordial matter to the human realm. This drew out a system of connection that mapped the Manganian continuum to the cybernetic. This text-based research was conducted to understand how Manganian continuum might manifest in contemporary digital artwork, and I never intended to illustrate the content of the cosmological narratives through artwork.

The nature of Manganian continuum was developed in relation to my practice through the core notion of flux. Flux occurs between the primordial materials from energy to the constitution of matter and it is omni-present in the Manganian universe. Also the interconnected, multidimensional layering of the spatial realms offered the possibility of flux, in the transition through worlds. The second central notion derived from Manganian cosmology in relation to my work was argued to be the doubling/coupling of forms. This was also referred to as a multidimensional outlay that suggested continuum. The generative and iterative process of genealogy

was explored through the anthropomorphic offspring of Vari-Ma-te-Takere. The reference to doubling/coupling of matter (body) and energy (spirit) had presence in land through the relationship of A'ua'u and 'Akatautika and the mediation between tuārangī (*evil spirits often animal*) and tangata.

I have linked the Mangaian continuum to the field of cybernetic systems by drawing on cybernetic pioneers such as Norbert Wiener (1967) and, Heinz Von Foerster (2003). The Mangaian continuum and Cybernetics of the First and Second order have been argued to conceptually parallel each other although occupying disparate time zones and geographical histories. In the first instance, by analogy, there is an alignment of the notion of the feedback loop to the ability to effect change in the Mangaian continuum. Circularity is then discussed as an exchange between observing and communicating where the observer is also the observed and afforded responsibility for the action. This opening served as a space I conceptually unfold into the speculative premise of inherent and explicit knowledge that manifests in art practice. I aligned the control mechanism in a cybernetic system to the role of the Ariki in the Mangaian continuum. This was then extended by adding the values of hidden and guarded knowledge to the term information by way of Mangaian definition. This gave porosity to information thereby opening the control mechanism in the Mangaian continuum and to the speculative premise of the Mangaian cybernetic continuum.

A selection of additional artistic practices to my own was proposed to intersect with the Mangaian cybernetic continuum. I drew on artists who that work in digital and non-digital formats to discuss the various ways feedback presented itself in contemporary art practice. Circularity occurred through interdependent relationships between viewer interaction, software analysis and the digital medium. I argued that the artist could become or simulate a control

mechanism, that ancestral knowledge could be transferred through this process and that the artist as maker encoded ancestral connection in the processes and material practice they explored. The artist as mediator was extended to the viewer/participant. This was done through the porosity of information and the ability for the observer to state their own purpose.

To closely consider a practice-led research project in relation to the proposition of a Manganian cybernetic continuum is the major component of this thesis. I reviewed the circularity of concepts and content in past and present practice and discussed the element of play when exploring new terrain. I have considered several bodies of work, untitled interaction series (2014); untitled, figures over ocean, in Oculus (2014); manchurian in mind (2015) and kurosawa (2015) that have each acted as portals for productive iteration. My findings about the relations between the artist/viewer/participant as observer and the observed was generative of new forms of art production. These observing and active relationships are also aligned to potential, that lies and waits a future becoming beyond the thesis.

Contribution to the field of knowledge

The speculative offering made by this thesis adds new knowledge in the form of the Manganian cybernetic continuum. This concept is an amalgam of Manganian knowledge (Oceanic/Moana/indigenous epistemology) and the mid Twentieth century field of cybernetics. These two very different forms of knowledge are merged to reconcile the relationship between digital and physical space and multiple temporalities. In doing so the thesis demonstrates the currency of Manganian thinking. Furthermore currency is added by the critique of historic narratives that stems from the colonial epoch as

this is dismantled and questioned. What re-emerges, is a third reading that reconsiders content and offers an emergent form of knowledge production in art practice. The offering of multiple means of connection to ancestor challenges the singular premise of diasporic classification for instance as 'Pacific artist'. The positive potential for discerning difference can be articulated by way of connection rather than disconnection.

The interactive digital media component of the art production contributes to media art practice. The framework and lens of the Manganian cybernetic continuum opens this form of contemporary practice to a new way of discussing interconnection. Few artworks have been generated for the new medium of Oculus Rift so this practice is pioneering in testing an emergent mode of art-making. This work contributes an alternative, experimental creative approach to the typical use of virtual technology for gaming and commercial outcomes.

The use of digital technology in this contribution extends itself into the ancient realm and lays the foundation for future expositions. This seeds a system for further exploration in practice and ways of inquiry by implicit and explicit means. This contribution adds another voice to knowledge creation as it outlines several methods that can be developed further in relation to learning and teaching practice.

Further research

This thesis project has served as a structure in which a research could be conducted. A context wherein ideas have emerged and become visible, taken shape, formed. This said, in another way of thinking, this research also appears as a porous

surface. By this I mean that in many areas there is more investigation and research to be done, more connections to be made and more things waiting to emerge.

The notion of the Manganian cybernetic continuum arrived at during this thesis has unseen potential, not yet fully realized in practice or in written text. There is insight to be gained for my art practice through developing further programming skills, a general understanding of mathematical and social theory of cybernetics and of current computer science. There is potential to reconcile these with the theoretical framings of media art practice as an interim step before further finding connections into Manganian cybernetic continuum.

There is potential to refine and re-exhibit work conducted through this process in forums such as ISEA (International Symposium of Electronic Art) and Ars Electronica (Linz) and locally through venues such as Digital Art Live. There is scope to build upon the platforms I have set. I intend to develop new means to explore flux at the core of interaction and image recognition. There is still unresolved conflict in the projection of a 3D space. Immersion into a 3D digital space via Oculus Rift allows a sense of being there. However the video projection of 3D space onto a 2D surface appears flat. It has the advantage of the audience's freedom of movement in space yet is still constrained by wires in the Oculus Rift. The problem of being there in the Oculus Rift is a disconnection to the being here. And the being here and there of projection causes physical limitations by constricting movement of the viewer. These conflicts have further room for exploration in the effort to reconcile the uneasy juxtaposition of digital immersive spaces in installation art practice.

This thesis has added a layer to what already exists in the discourse of knowledge creation through art practice, however there is further articulation to be made. The constitution of intuitive knowledge into explicit statements is a difficult process and future steps will be made towards practical methods of application in my art practice. The relation between 'akapapa and tū, with the methods of tu'i has room to be expanded and tie to other knowledge systems and also applied to art-making.

In summary I have been attempting to explicitly articulate inherent and intuitive ways of knowing as an artist. On some level the exploration of cybernetic systems as a distal inquiry through the research project has allowed for these inherent manifestations to occur in the explicit manner articulated in thesis form. This has afforded me the ability to understand that I am a medium in the continuum of ata, a becoming. Within this space I have found that the control mechanism in this space of control is porous; in so being one must let go of control to connect. That is, connection is in the space of no control.

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Addendum

Art work displayed for Examination

August 27 - September 2, 2016.

The art work displayed for examination comprised of two works. *Self-portrait - tetai (an)other* (2016) an interactive installation, sited in AUT Performance Space. The second work *Untitled, figures over the ocean 2, in Oculus* (2016). This was displayed in AUT School of Art and Design's postgraduate Test Space. The return to existing imagery enables a continuity, or cyclical relation to earlier phases of practice. The work has the gene-archaeological code of the artist embedded into it.

Self-portrait - tetai (an)other (2016)

(Processing code, 2 x data projectors, 2 x web cameras computer).

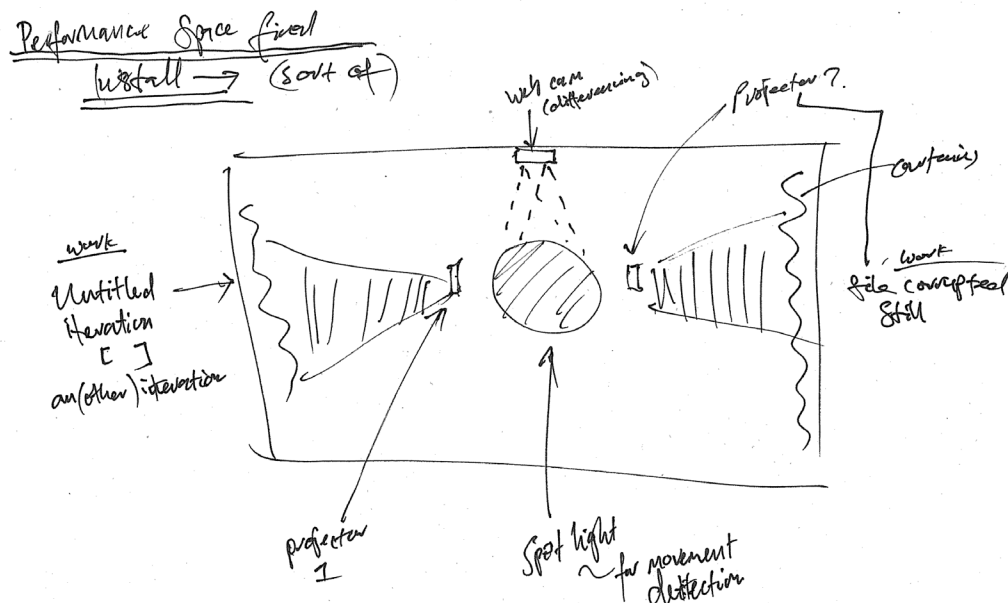


Figure 1. Diagram of Performance Space Installation

Self-portrait - tetai (an)other is an interactive installation that maps the movement of the viewer onto two projected self-portraits of the artist. The doubled/ coupled form of self as other, *te ta'i* (another, other) as opposed to *ke* (different, other).

The installation comprised of two large-scale interactive portraits. One derived from the *untitled interaction series* (2014) the other a still from *file corrupted* (2010).

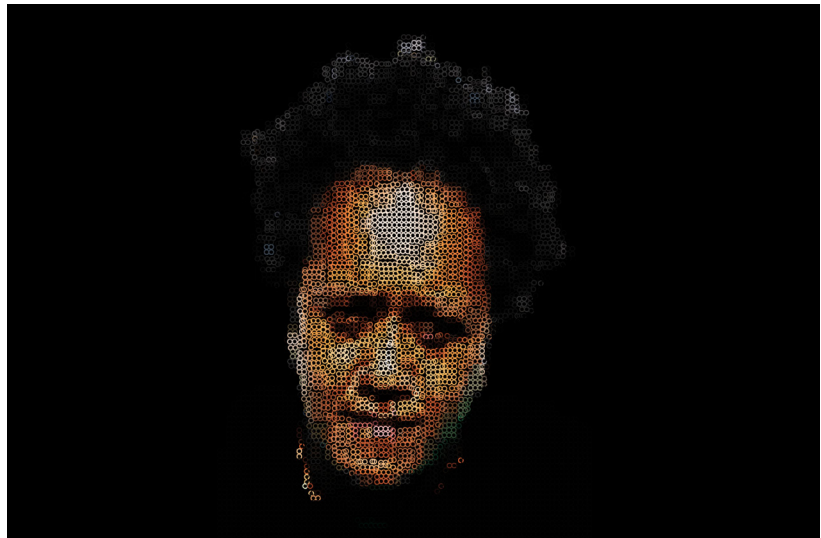


Figure 2. Portrait derived from *untitled interaction series* (2014). Desk top test, no viewer movement detected.

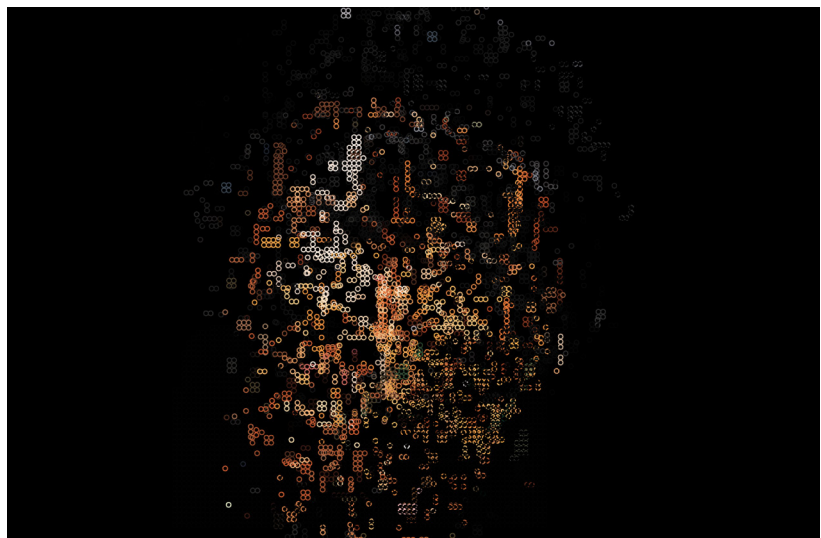


Figure 3. Portrait derived from *untitled interaction series* (2014). Desk top test, viewer movement detected.



Figure 4. Portrait derived from *file corrupted* (2010). Desk top test, starting state.

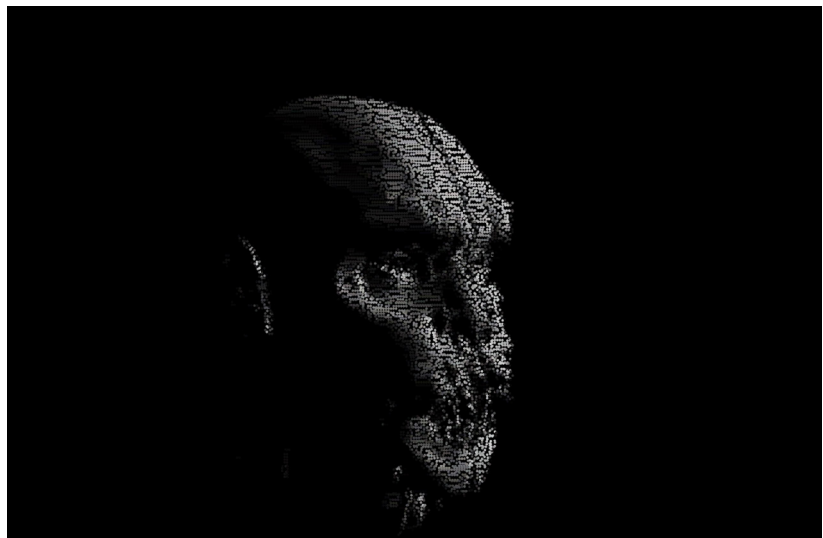


Figure 5. Portrait derived from *file corrupted* (2010). Desk top test, viewer movement detected.

The portraits are projected at opposite ends of the room (see figure 1), onto large black curtains that comprise the fabric of the space. The curtains diffuse light affecting the quality, luminosity of colour, in the projections. A diffused spotlight was placed midpoint between the two portraits. It highlighted a zone of interaction where the viewer's presence was registered by web cameras and altered the state of the portraits.

Both portraits are separated from a body and suspended in digital space as well as placed in a darkened physical space. The activation of the paired heads simultaneously dissolves matter to pixelated flux, just as form is coupled with the omnipresence of energy in the Mangaian cosmological narratives. The colour reduction of the portrait of the artist reduces the head to surface.

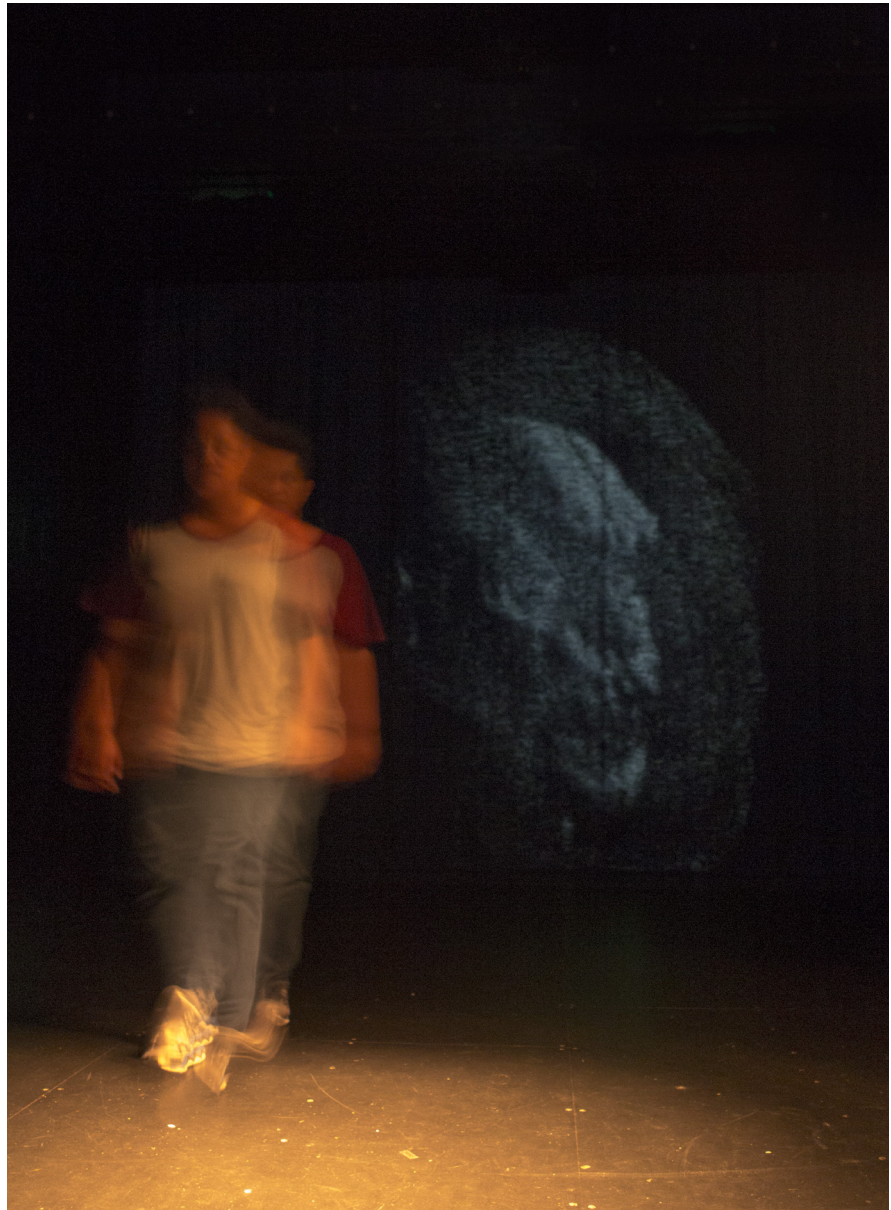


Figure 6. *Self-portrait - tetai (an)other* (2016) installation shot [1]

The portrait derived from *untitled interaction* (2014) dispersed to pixelated form when movement was detected. The *file corrupted* (2010) other presented itself as pixelated until motion was detected. The faces as recognisable forms rarely presented themselves to each other, or to the viewer, simultaneously.



Figure 7. Self-portrait - tetai (an)other (2016) installaton shot [2]



Figure 8. Self-portrait - tetai (an)other (2016) installaton shot [3]



Figure 9. *Self-portrait - tetai (an)other* (2016) installaton shot [4]

The artist is part of a control mechanism that determines the relations at play in this interactive artwork. However the form the double portrait takes, is determined by the viewer-participant. They control the states of the portrait by scattering or reassembling fragments. The malleability of digital form suggests the innate porosity of the information. The circular nature of feedback forges a connection in continuum.

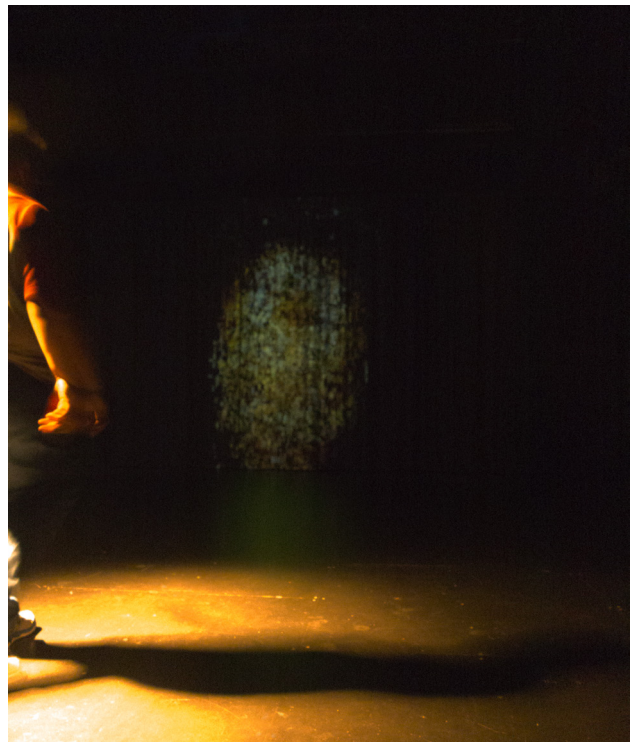
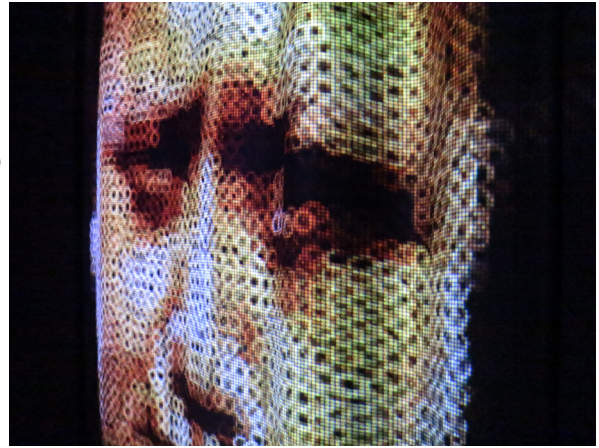


Figure 10. *Self-portrait - tetai (an)other* (2016) installaton shot [5]

Figure 11. *Self-portrait - tetai (an)other* (2016)
installaton shot [6]. Projection detail.



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***Untitled, figures over the ocean 2, in Oculus* (2016)**

(Oculus Rift (DKD2), Unity 3D, Maya)

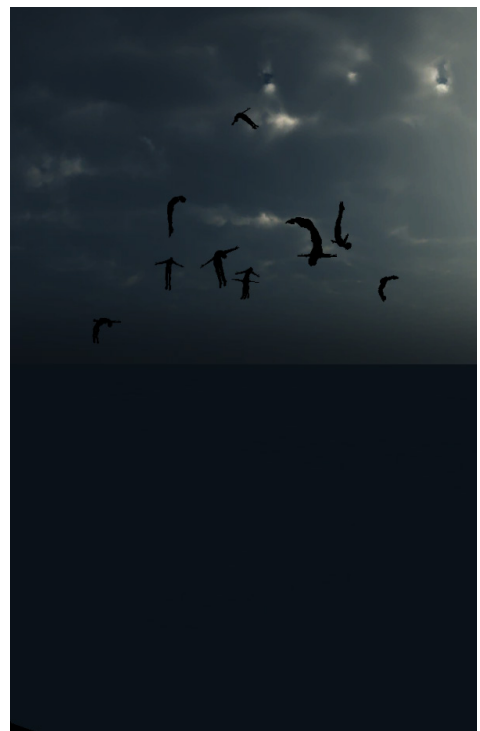
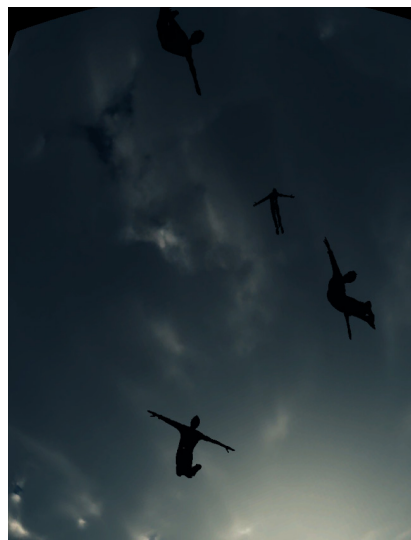


Figure 12. *Untitled, figures over the ocean 2, in Oculus* (2016).

This work is a recent iteration of *Untitled, figures over the ocean*, in *Oculus* (2014). It was a virtual reality immersive experience constructed using Unity 3D and displayed in the Oculus Rift headset.

The figures exist in no place, an exterior space made interior by the immersion of the Oculus Rift head set. Here the doubling and coupling of form is made present through an aperture, where the physical ground drops away. As Albert Refiti (2008) suggests the centre in Polynesian thinking is a point of 'extreme transparency where the private individual becomes obliterated' (ibid., p.123). This is a 'sacred in-between space that allows entities/time/space to collapse together in an interconnectedness' (ibid.) In the aperture (Gill, 1876) communication and transition between possible worlds is enacted.



Figure 13. *Untitled, figures over the ocean 2*, in *Oculus* (2016).